The UNESCO Courier

A window open on the world

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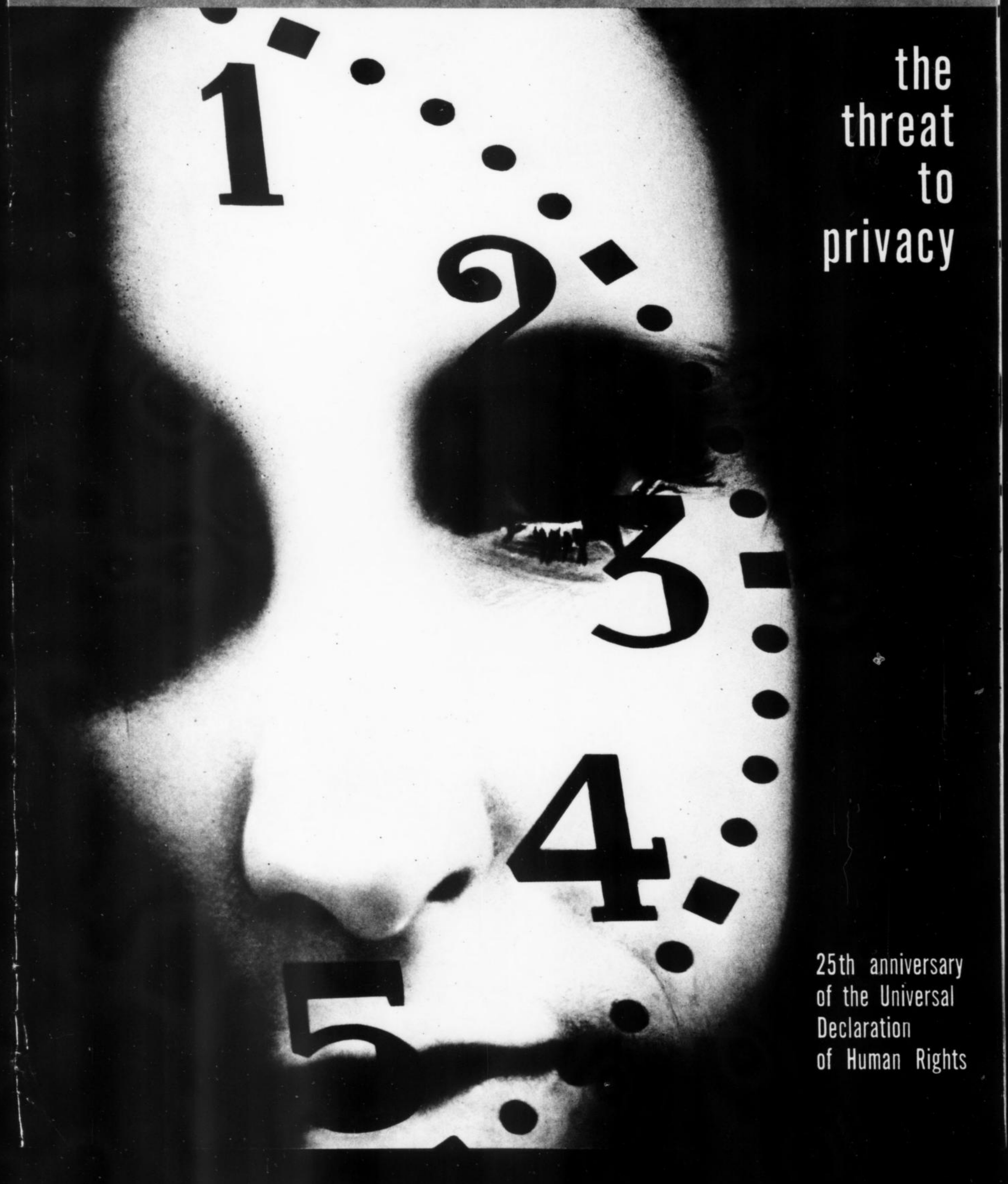

the threat to privacy

25th anniversary of the Universal Declaration of Human Rights

TREASURES
OF
WORLD ART

79 BRAZIL

Photo © Parimage, Paris

Regal Amazonian

Few traces of ancient civilizations were found at Santarem, on the Tapajoz river in the Brazilian Amazon basin, until 1922 when a cloudburst washed out the streets of the city and uncovered stone tools and a great quantity of pottery. Since then, excavations at many sites along the Tapajoz have revealed pottery that has been called "perhaps the most remarkable in the Amazon Valley." Santarem pottery is notable for its unusual shapes and profusion of bird and animal ornaments modelled in the round as well as decorative patterns and designs, incised and in relief. Seated figurine, dating back to about 1200 A.D. is one of the striking pieces of pottery found near Santarem. Human heads, whether figurines or decorations applied to vessels, are often shown with headdresses resembling a diadem and ears depicted by a double prominence, as here, and eyes shaped like coffee beans.

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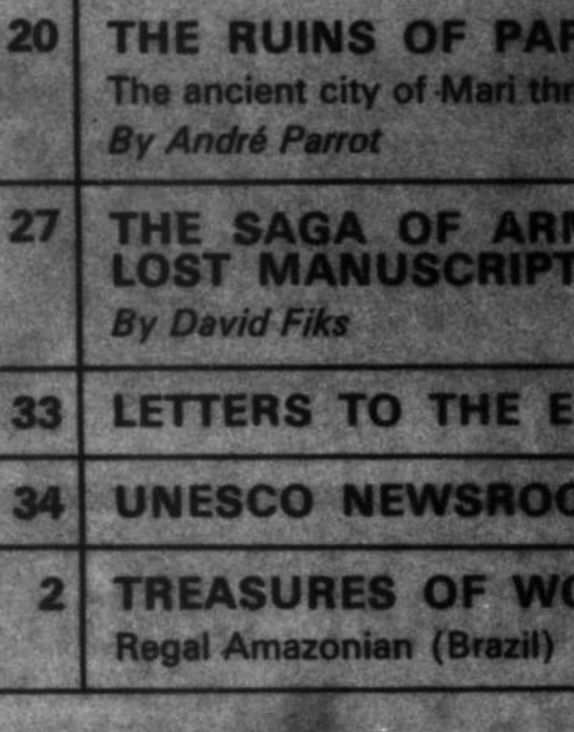

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THE THREAT TO PRIVACY

This year is the 25th anniversary of the Universal Declaration of Human Rights. Meeting in Paris, on December 10th 1948, the United Nations General Assembly adopted the 30 articles of the Declaration. On December 16, 1966, the General Assembly unanimously adopted two covenants designed to give the Declaration the force of international law: one covering economic, social and cultural rights and the other dealing with civil and political rights. The two covenants have not yet received the necessary number of ratifications to enter into force. This issue of the "Unesco Courier" is devoted in large part to the right to privacy, a basic human right guaranteed by several articles of the Declaration.

HUMAN RIGHTS AND THE THREAT TO PRIVACY

This year marks the 25th anniversary of the Universal Declaration of Human Rights adopted in Paris in 1948. In January 1973, the Secretary-General of the United Nations presented to the U.N. Commission on Human Rights the results of a global inquiry on "Human Rights and Scientific and Technological Development". The inquiry was carried out in response to a request from the General Assembly of the United Nations in 1968, following concern on this subject expressed at the International Conference on Human Rights meeting in Teheran earlier that year. "While recent scientific development and technological advances have opened vast prospects for economic, cultural and social progress ", the Teheran conference said, "such developments may nevertheless endanger the rights and freedoms of individuals and will require continuing attention." The protection of privacy in the face of threats posed by modern technology has also preoccupied Unesco for many years. Unesco's General Conference examined the problem in 1968 and Unesco has since carried out a series of international inquiries and studies in this field. On the following pages we reproduce salient passages from the Secretary-General's report to the U.N. Commission on Human Rights (pages 4-15) as well as from a recent Unesco study on the Right to Privacy (page 16).

1. An international inquiry by the United Nations

FOR about two decades, steadily increasing concern has been expressed as to the feasibility of protecting the privacy of the individual in the light of rapid advances in recording and other techniques that make it relatively easy for a person to be heard and seen, to have his voice recorded and his picture filmed, without his being aware of it, both in public places and in places which he has reason to believe are secluded.

These advances are due largely to developments in the field of electronics (in particular, the invention of the transistor), optics and acoustics and the miniaturization of the devices developed, with new technological processes continually becoming available.

Similar concern has been expressed about the technologically unrelated but contemporaneous development of the invasion of privacy by psychological and physical testing methods that are being utilized for non-medical purposes.

The benefits which scientific knowledge and its application through technology have brought to mankind are immense, in terms of the liberation of the mind and an enhanced understanding by man of himself and of the universe surrounding him and in terms of the improvement of man's physical well-being. The United Nations and its specialized agencies, and notably Unesco, are concentrating much of their effort on programmes which encourage and support the application of scientific knowledge and technology to the betterment of human life.

During the nineteenth and early twentieth centuries scientific advance

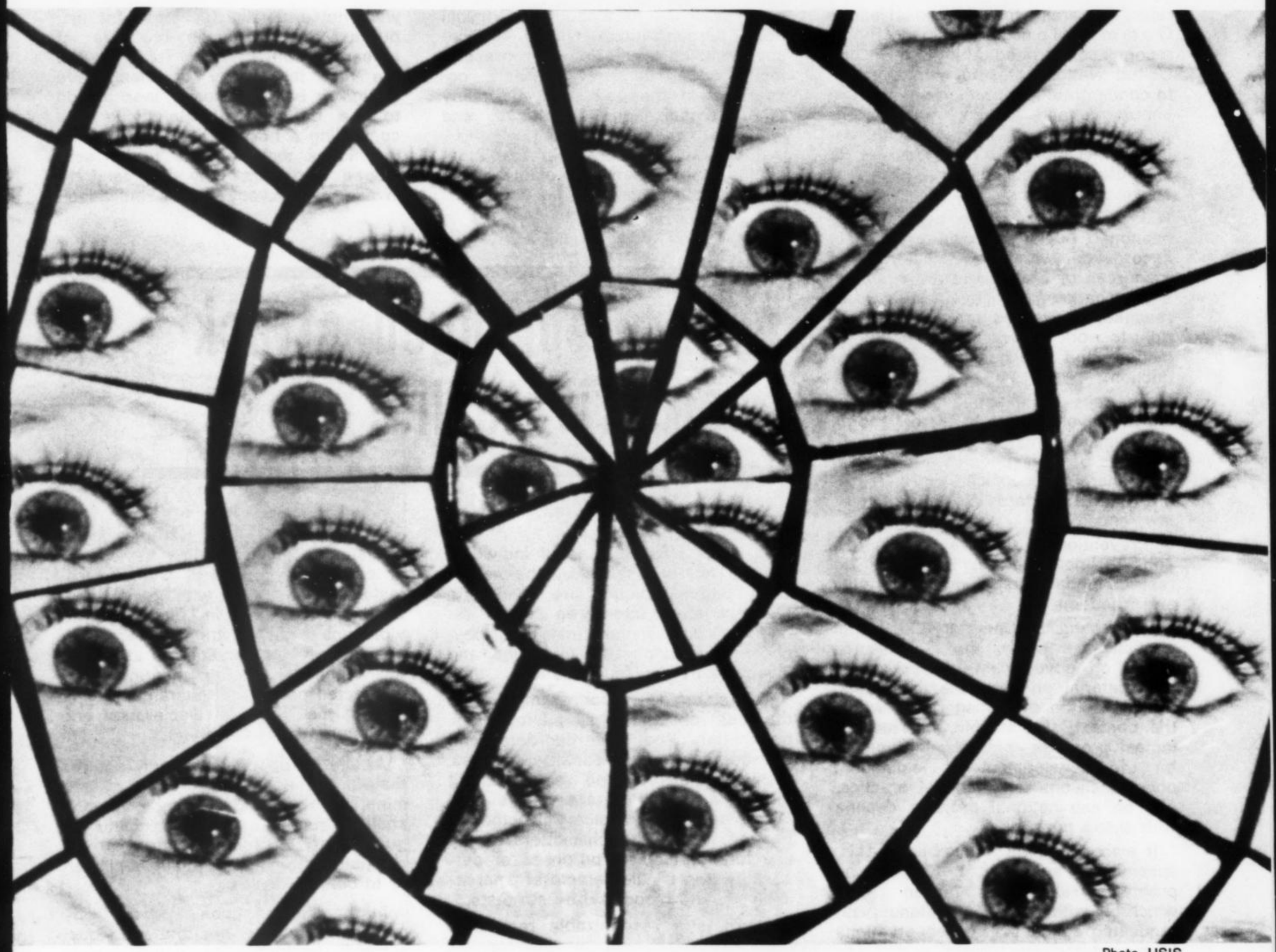

Photo USIS

was widely assumed to be inevitably favourable to human progress, and no essential conflict was generally envisaged between the two. Subsequent events, however—in particular the devastation caused by two world wars, which was made possible to a great extent by scientific and technological developments—have raised doubts as to the existence of such an inevitable alliance between scientific advance and human progress.

More specifically there has been a growing realization that, whereas scientific knowledge by itself may well be neutral, much of it can be applied in ways that are harmful to humanity.

The question of the impact of recent scientific and technological developments on human rights was brought before the United Nations as the result of an initiative taken in 1968 by the International Conference on Human Rights, convened at Teheran, Iran.

The Conference adopted a Proclamation on Human Rights which pointed out, among other things, that while recent scientific discoveries and technological advances have opened vast prospects for economic, social and cultural progress, such developments might nevertheless endanger the rights and freedoms of individuals and would require continuing attention.

The Conference, more specifically, recommended that the organizations of the United Nations family should undertake a study of the problems with respect to human rights arising from developments in science and technology, particularly with regard to certain specified topics.

Later in 1968, on December 19, the United Nations General Assembly adopted a resolution on human rights and scientific and technological developments in which, sharing the concern expressed by the Teheran Conference, it endorsed the idea that these problems required thorough and continuous national and international interdisciplinary studies which might serve as a basis for drawing up appropriate standards to protect human rights and fundamental freedoms.

The resolution invited the Secretary-General of the United Nations to undertake, notably with the assistance of the U.N. Advisory Committee on the Application of Science and Technology to Development, and in co-operation with the competent specialized agencies, a study of the problems in connexion with human rights arising from developments in science and technology, in particular from the following standpoints:

- Respect for the privacy of individuals and the integrity and sovereignty of nations in the light of advances in recording and other techniques;
- Protection of the human personality and its physical and intellectual integrity, in the light of advances in biology, medicine and biochemistry;
- Uses of electronics which may affect the rights of the person and the limits which should be placed on such uses in a democratic society;
- More generally, the balance which should be established between scientific and technological progress and the intellectual, spiritual, cultural and moral advancement of humanity.

In March 1971, after considering the preliminary report of the U.N. Sec-

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retary-General, the United Nations Commission on Human Rights recognized the need during the Second United Nations Development Decade to concentrate its attention on the most important and basic problems of protecting human rights and fundamental freedoms in the context of scientific and technological progress, and in particular on:

- Protection of human rights in the economic, social and cultural fields in accordance with the structure and resources of States and the scientific and technological level they have reached, as well as protection of the right to work in conditions of the automation and mechanization of production;
- The use of scientific and technological developments to foster respect for human rights and the legitimate interests of other peoples and respect for generally recognized moral standards and standards of international law; and
- Prevention of the use of scientific and technological achievements to restrict fundamental democratic rights and freedoms.

Requesting the Secretary-General to continue his study, the Commission called on governments to submit to him material on problems concerning the protection of human rights within the context of scientific and technological progress, including information on the development of legislation, court decisions and national practice, and on any national projects dealing with these questions.

It also called on a number of U.N. specialized agencies to report on problems relating to human rights which fall within their competence, and requested comments and observations from intergovernmental and non-governmental organizations.

The U.N. Secretary-General requested further information for the study from member states of the United Nations and its specialized agencies, particularly on laws, draft laws, implementing regulations, court decisions and model codes relating to the various devices and techniques affecting the privacy of the individual, and information regarding the protection of the integrity and sovereignty of nations in the light of advances in recording and other techniques.

In all, 54 governments supplied information for the U.N. study on human rights and scientific and technological developments. Some 15 governments stated that they had no information, studies or comments to forward. Reports were also received from six specialized agencies: International Atomic Energy Agency, International Labour Organization, International Telecommunication Union, Unesco, Universal Postal Union and World Health Organization.

Information was also supplied by the Council of Europe, the League of Arab States, the Organization for Economic Co-operation and Development and the International Criminal Police Organization. Nearly 40 non-governmental organizations, representing a wide range of interests, co-operated in the study, as did many other organizations, institutes and individual researchers.

It should be made clear that most of the new techniques employed in invading the privacy of the individual were not originally developed for that purpose but were by-products of research in other fields. This fact, and the fact that many of them have benign or beneficial uses, tend to add to the difficulty of identifying and controlling a host of new devices and techniques that continue to be developed and that may be used to invade the privacy of the individual.

2. Three-pronged attack on private life

THE invasions of individual privacy made possible by the newly-developed techniques are divided in the U.N. study into three categories: auditory and visual invasions, psychological and physical invasions, and invasions by data surveillance.

The study deals, for example, with the use of wire-taps, microphones, transmitters and tape-recorders, and telescopic lenses, candid cameras, two-way mirrors and closed-circuit television. With regard to the psychological and physical invasion of privacy, it covers such matters as the use for non-medical purposes of personality tests, "lie-detectors", narco-analysis, and blood and breath tests.

There is a recognizable reciprocal relationship between respect for the privacy of the individual and the protection of certain other human rights, the effect being one of mutual reinforcement. This interaction is not new but has been receiving renewed attention lately in view of the increased opportunities for violations of privacy afforded by recent scientific and technological developments.

Among the rights which may be affected by invasion of privacy is the right of everyone to freedom of opinion and expression proclaimed in article 19 of the Universal Declaration of Human Rights and dealt with in article 19 of the International Covenant on Civil and Political Rights.

Two others are the right to freedom of thought, conscience and religion (article 18 of the Universal Declaration and article 18 of the Covenant); and the right to a fair and public hearing in the determination of the individual's rights and obligations and of any criminal charge against him, including various rights of the defendants in penal proceedings (articles 10 and 11 of the Universal Declaration and articles 14 and 15 of the Covenant).

Questions are being asked such as whether invasion of privacy by means of listening and recording devices or of certain psychological and physical tests in connexion with penal proceedings do not, in fact, lead to violations of existing guarantees against self-incrimination, an aspect of the right to a fair hearing, and connected procedural guarantees dealt with in the Universal Declaration and the International Covenant.

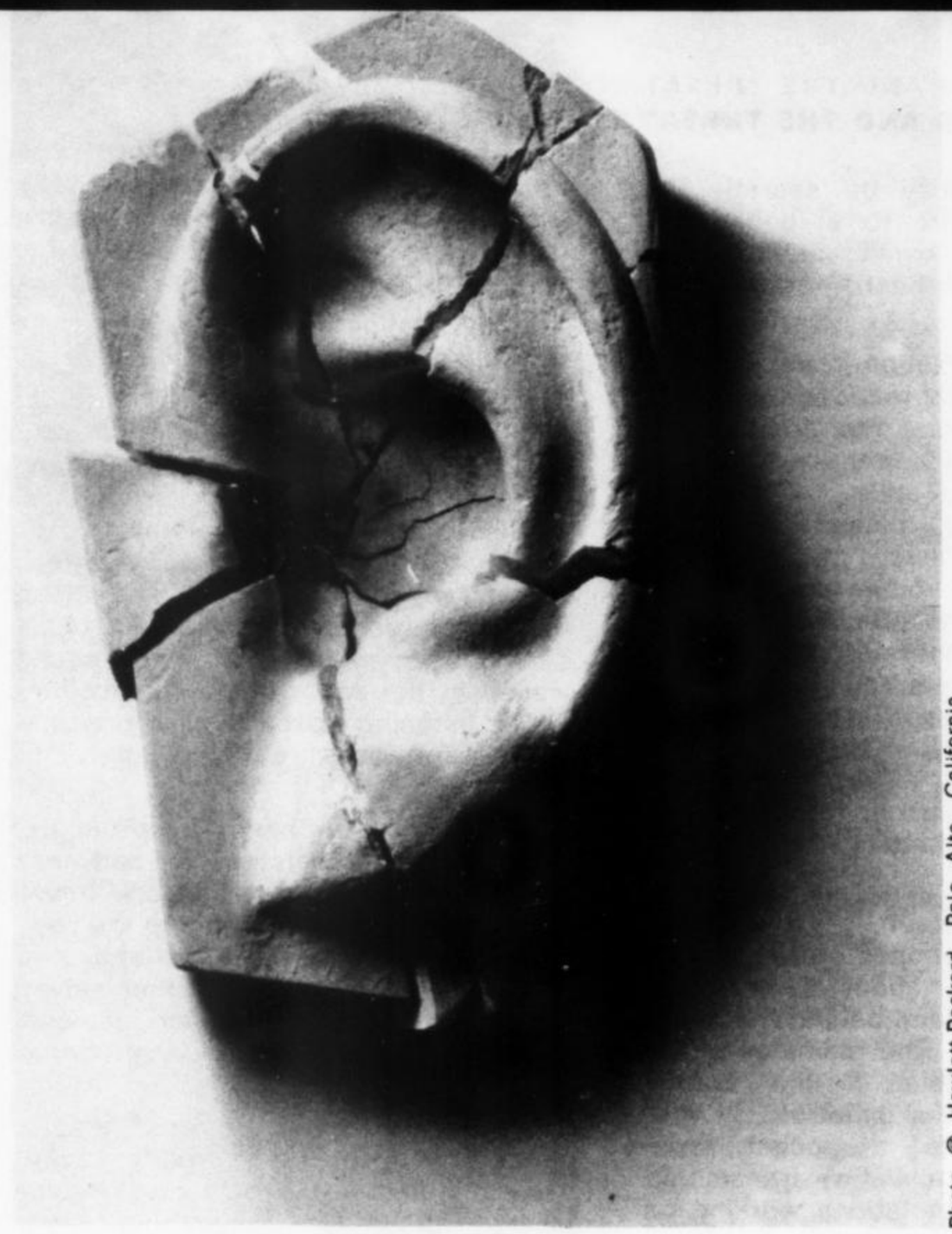
Article 14 of the Covenant requires that in the determination of any criminal charge against him, everyone shall be entitled to certain minimum guarantees, including "not to be compelled to testify against himself or to confess guilt".

Infringements upon privacy by modern methods of auditory and visual surveillance may also, under certain circumstances, violate guarantees against arbitrary interference with the family, with the home, with the secrecy of correspondence, in particular through the tapping of telephone conversations, and with guarantees against attacks on one's honour and reputation (article 12 of the Universal Declaration and article 17 of the Covenant).

The connexion existing between the enjoyment of privacy and of other human rights has been summarized as follows:

Wholesale invasions of privacy inhibit liberty, often purposely. This is particularly true of surreptitious invasions, like electronic eavesdropping, spies, informers, entrappers, and psychological testing, of the existence of which the subject is often unaware until too late. The community becomes fear-ridden, and no one can be trusted, whether he be family, friend or associate; indeed, a person may be led to continual distrust of himself, as his efforts at individual self-fulfilment conflict with the norms of authority.

This destruction of trust is one of the major dangers to a free society.



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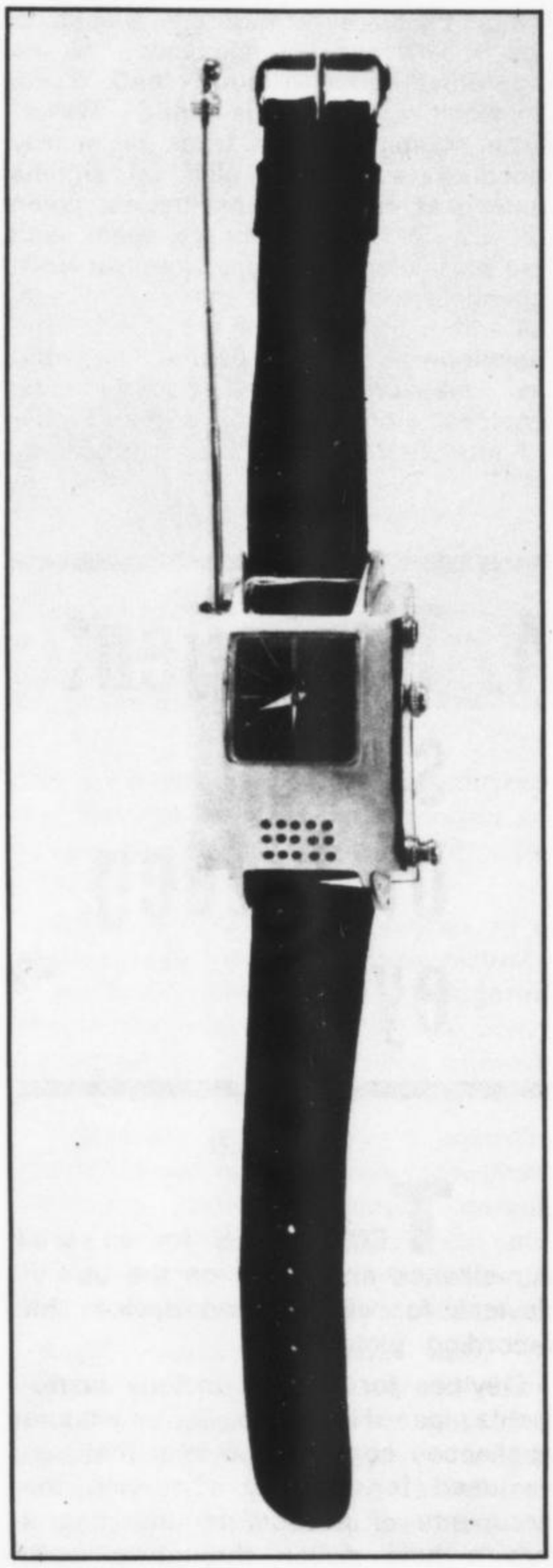

This ordinary-looking wrist watch conceals a tiny radio transmitter and telescopic antenna (here extended fully). Such a device can easily be used secretly to pick up and transmit conversations. In conjunction with an electronic robot receiver, the transmitter could also serve as a remote control switch to set a tape recorder in motion. The growing micro-miniaturization of electronic equipment has enormously increased the danger of eavesdropping with a host of devices.

3. The walls etc... have electronic ears

ONE of the oldest among the modern methods of auditory surveillance is the wire-tap.

Such "direct taps" could take place anywhere between the voice-piece of the telephone and the main telephone exchange. They interfered sometimes with clear transmission, however, and were subject to discovery by physical inspection.

Describing the techniques of wire-tapping, in his book "Privacy and Freedom" (New York, Atheneum, 1967), Alan F. Westin says that the major innovation in wire-tapping before 1941, and still the leading technique, uses the induction coil.

By this technique an induction coil is placed a few feet from the telephone or near its various connecting wires at any point before it is mixed with other lines. This requires no cutting or breaking into the telephone wires or equipment. The coil, being in the magnetic field carrying the voice signal, draws off a very small amount of that signal and carries it to a receiver that permits the listening to or recording of conversations.

In addition to their use as "planted" devices, says Westin, induction coils can also be used as portable devices when kept in a pocket and wired to a pocket recorder. In this way calls have been tapped by investigators sitting in waiting-rooms outside business, law, and government offices, from rooms adjoining those of hotel guests, and even from the street outside a building when a phone is near the sidewalk.

Techniques are being developed in several countries which make it possible to identify persons speaking on the telephone without reference to the contents of the conversation.

Microphones may be used for monitoring ordinary conversations, not carried over telephone wires. Some of these microphones require external wire connexion to their source of power, others work on internal batteries. Some have to be introduced into the premises where the conversation takes place, others are able to monitor from outside.

A simple microphone requires positioning on the premises in ques-

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tion, where it may be secretly left, connected by wire to a loudspeaker over which the conversations taking place may be heard outside the premises.

Micro-miniaturization has enabled microphones to be reduced to the size of a match-head. The transmission range is from 300 feet to more than a quarter of a mile. These tiny mikes can be placed inside a telephone, a flower-pot, a picture frame or in any other object in the room. A common practice is to tape them to the underside of furniture. No wires are required for the Frequency Modulation (FM) microphones which have a built-in battery-operated radio transmitter. They can give a constant transmission for five days with a 1½ ounce battery.

Small devices exist which can be worn on the person. For example, magnetic microphones are on the market weighing about 5 grammes, which may be hidden behind the lapels of a suit jacket. The diameter of the mouthpiece, visible in the buttonhole, measures 9 millimetres. It may be connected to a pocket tape-recorder or to a miniature transmitter. This device and variations working on the same general principle (such as cuff-links and fountain pens containing microphones are said to be widely used.

SOME microphones do not need to be placed inside the premises in which the conversation takes place. Directional microphones, for instance, are able to pick up sounds from the outside through any openings in a room, such as open windows.

They may also be used to listen to conversations held outdoors, for example on park benches or in fields, hundreds of feet away. Some directional microphones are, moreover, able to monitor sounds through closed windows. They have a range of 40 to 50 metres.

Another type of microphone which does not require trespassing on the premises concerned is the contact-microphone. This device, which may be the size of a lima bean, can be attached to the outside of the wall of a room. When sound waves set up by speech strike the wall, it picks up enough of the vibration to permit accurate recording.

Where the walls are too thick, a variation on the contact-microphone, a "spike-mike", may be used. The vibrations in that case are transmitted through "spikes" the size of a small nail to contact-microphones and then recorded.

Another instrument for recording speech from a closed room is a device that uses a reflector made of a thin diaphragm and a microwave antenna. The device is activated by a microwave beam that goes through solid walls and has a range of a city block. When activated it sends the vibrations in the room to an outside receiver and the conversation is recorded.

"Micro-balles", i.e., microphone bullets, may be shot at windows by a special rifle, to catch sound of speech from outside the window.

A technique exists for taking sound out of rooms using laser microphones. One such device is portable and sends out an invisible infra-red beam, which may travel for miles before reaching the target room. The returning beam having been modulated by the sound waves in the room, a photo amplifier at the listening post makes it possible to transform the returning light into sound.

Tape-recorders have been miniaturized and transistorized and are capable of recording for several hours without any need for changing the reel. Some tape-recorders are self-activated by sound and stop of themselves when silence returns. Such devices, may, for example, be built into briefcases.

It has also been reported that a dentist, while fllling a tooth cavity, may insert there a miniature microphone capable of transmitting every word spoken by the person concerned during the day, or a small transmitter emitting a signal permitting an operator in a distant room to follow closely the person's movements all over a city; and that miniature transmitters exist which a person may swallow without his knowledge.

Miniature transmitters may also be placed inside a car, whence they emit a signal which can be tracked by portable receivers in other vehicles, miles away.

Ordinary telephones may be transformed into transmitters by processes requiring entry into the premises concerned. One such telephone-based transmitter, the "Harmonica Bug", has been described by one expert as follows:

"Once this is installed in the telephone of the victim, the eavesdropper, who can be anywhere, even thousands of miles away provided that he is on a direct dialing system, merely dials the victim's number and blows a predetermined musical note on a harmonica. This note is picked up by the device in the victim's telephone, and prevents it from ringing. At the same time it connects the telephone microphone into the line so that the eavesdropper can listen to any conversations that are taking place within earshot of the victim's telephone."

The "internal telephone transmitter" is a miniaturized transmitter that resembles the microphone in the mouthpiece of the telephone receiver, for which it is substituted. It sends the voice impulses created by the use of the telephone to a transistorized FM receiver, set at the device's transmission frequency. The transmitter receives its power from the telephone line in question.

There exist small, unobtrusive electronic devices to be worn or implanted on one's person; these devices emit signals permitting a monitor located some distance away to determine the wearer's location. Existing technology is, moreover, able to produce devices which can, in addition, monitor such bodily reactions as pulse rate and blood pressure as well as the sounds in the wearer's immediate surroundings, for example, his conversations.

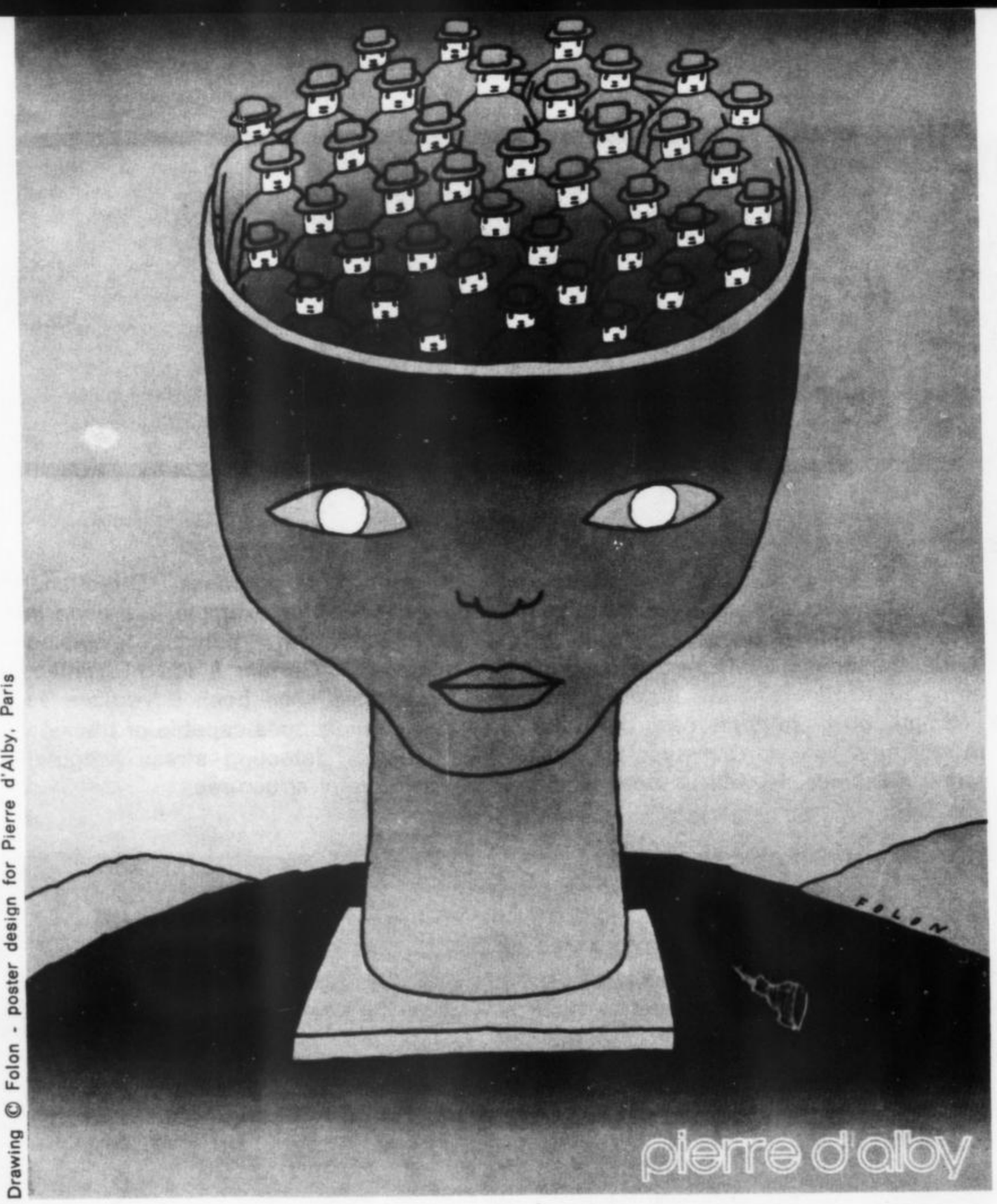
Another device for electronic surveillance permits a person within a range of three or four city blocks to learn whether a television set is operating within a house and, if so, to which channel it is tuned. Radar-type equipment in a truck or nearby building is able to pick up signals known as horizontal oscillators, given off by TV sets, compare them with the particular signal produced for each channel, and identify the one in use, all within a fraction of a second. The developers of this device, intended for measuring television audience choices, state that they are also able to identify radio stations.

4. The silent sweep of hidden eyes

TECHNIQUES for visual surveillance are based on the use of devices for viewing and devices for recording pictures.

Devices for viewing include instruments as diverse as miniature appliances containing a lens that can be used for secretly observing the occupants of a room by inserting it into a hole drilled through a wall; polaroid and other types of one-way windows behind which people can sit and watch what is happening in another room without the occupants being aware; and powerful telescopes that make it possible to observe locations in which persons have reason to assume they are secluded from public view.

For recording pictures, still and



Drawing © Folon - poster design for Pierre d'Alby, Paris

movie cameras have been miniaturized and can be installed on premises or hidden on the user in ways that make detection difficult.

Miniature still cameras hidden in a room can be pre-set to take pictures at periodic intervals or to be triggered in various ways, by a switch being turned on, a file drawer being opened, or a person entering the room.

Telescopic lenses make it possible to photograph small objects from great distances. Small telescopic devices exist, measuring 20 cm., which are able to photograph a typewritten page at a distance of a hundred metres.

Light intensifiers, used with or without cameras, provide normal vision in poor daylight or moonlight, and acceptable vision on an overcast, moonless night; and image stabilizers allow sharp pictures to be obtained from helicopters or by hand (even while the person with the camera is walking around).

Television techniques may be used both for viewing and for recording. For viewing alone, so-called "live" transmissions are used, in the form of closed-circuit television.

Television "eyes" of very small dimensions (8 × 23 cm.) can be hidden in a room whence they can send pictures to a receiver a block or two away. "Optical fibres" to which a lens is attached can bend light around corners. This makes it possible to place only the optical fibre and lens in the room under surveillance and to install the TV camera itself elsewhere. Moreover, TV cameras are available which are small enough to fit into a coat pocket and have an "eye" the width of a cigarette.

DEVELOPMENT of television tape makes possible the recording and replaying of televised situations and events.

The use of infra-red light makes it possible to observe and to take pictures in the dark, since concealed cameras equipped with infra-red film can photograph actions in a dark room if an invisible infra-red energy source has been placed within that room.

This can be done by putting special bulbs in overhead fixtures or lamps. To the naked eye the bulb seems to be unlit, since no visible light is transmitted; but it is actually flooding the room with infra-red light and will provide the basis for clear snapshots or films. If the windows are bare, cameras outside the premises can photograph inside by projecting infra-red illumination into the room.

Substances exist which have the appearance of solid wall panels and which do not permit the passage of normal light but do transmit infra-red light. The source of infra-red light need not be inside the room but may be supplied by a beam sent from the observation post.

A miniature device has been placed on the market which combines the television camera with a transmitter. It can transmit the pictures it takes and can operate in darkness with the use of an infra-red system.

Modern technology makes it possible to pass visible light or "infra-red energy" through sealed envelopes and to take pictures. These pictures can then be read—or, more properly, deciphered—by persons skilled in reading handwriting or typing where lines are inverted and superimposed. Also available today is a needle-thin "flashlight" that can be inserted in a sealed envelope to "light it up" for quick reading by a trained investigator.

Optical "scanners" have been developed, capable of scanning and recording typed or hand-printed letters, words and numbers at the rate of 840 single-spaced, typewritten pages per hour. These "scanners" can be used to establish an automated "mail cover" to record systematically the names, addresses, etc., of persons sending mail to a particular individual. Such information, too, may be forwarded to a computer for storage and analysis.

Fluorescent powders or dyes have been produced which are applied secretly to a person's hands, shoes, clothing, hair, umbrella, and the like, or can be added to such items as soap, after-shave lotion, and hair tonic which an individual applies to himself.

Although these substances are invisible under regular light, they register as "glowing" substances on the person being followed when he is illuminated by an ultra-violet light source carried by the investigator.

A method of thermal detection that can be used to establish the recent presence of persons has been described as follows:

Nearly all moving bodies or warm-blooded animals contain a source of motive power that inevitably develops heat as well as motion. It is thus possible to detect automobiles, tanks, ships, aircraft, and human beings, by the heat they radiate. As a result of World War II and the subsequent development of guided missiles, thermal detectors can now be made

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very sensitive, and capable of giving pictures of a scene in which the hotter objects show up more brightly than the cooler ones.

The exposed portions of the human body radiate more heat than those that are clothed, and thus show up as "whiter". At the same time, the sensitivity of the thermal detector can be made so great that even a surface that is one thousandth of a degree centigrade above its surroundings will show up relative to these surroundings.

It is thus even possible to discover where a person has recently been sitting or lying, because his body has warmed the surface underneath, and this takes some minutes to cool down after he has left it . . . but the amount of information that can be obtained in this way is very limited.

An aerial hovering device has been developed which may combine viewing and listening. This is a unit with two counter-rotating rotor blades which is sent to hover aloft, attached by cable to ground-control equipment. About three to four feet in diameter and weighing forty to fifty pounds, the surveillance unit now carries closed-circuit TV equipment that transmits pictures of objects at ranges of one mile or more. It could carry listening equipment just as easily. The unit hovers at altitudes of 100 to 2,000 feet and rotates 360 degrees for tracking purposes.

These systems are not difficult to operate and allow someone, as Alan F. Westin points out in "Privacy and Freedom", "to watch, photograph, and listen to activity within a mile or more of his own property, without ever entering the physical air space of his neighbours."

5. Lawless frontiers of modern technology

MANY devices for auditory and visual surveillance have harmless or even beneficial uses in a variety of fields, including medicine, education, crime prevention and law enforcement.

Small, portable tape recorders are in common use in business as dictating machines as well as being used for recreational purposes. Directional microphones, for example, are used in connexion with public television broadcasts Certain kinds of contact microphones have been advertized as super-stethoscopes capable of tracking termites or detecting stress irregularities in metal structures.

Clandestine...

In January 1970, Unesco organized an international meeting on the right to privacy. One of the participants, Pierre Juvigny, jurist and member of of the French Conseil d'État, and author of a special paper presented to the meeting, "The Right to Privacy in the Modern World", summarized the basic problems involved in the misuse of new recording techniques as follows :

...THE factor which is typical of all these modern recording devices is their clandestine use, whether they are a telephoto lens, wire-tapping and telephone espionage, polaroid glasses and perhaps, before long, mini-equipment which may make possible the surveillance or even the control of the behaviour of an individual at any time and without his knowledge...

Such utilization of these different devices by the public authorities raises many legal problems. Even though, in many countries, courts and tribunals usually refuse to accept as evidence information obtained in this manner—particularly as the possibility of altering an authentic recording cannot be ruled out—studies should first be made of whether it is lawful or unlawful to make such recordings and use them in the legal sphere.

The danger is obvious when those procedures are used by State bodies which are usually beyond the parliamentary, jurisdictional, administrative or other controls to which the public services are usually subject. In a world where there are parallel, unofficial and even clandestine organizations side by side in the spheres of the police, information and surveillance . . . , it is obvious that these services could use such recordings as a weapon for pressure and blackmail that could interfere with the legislative, executive and judicial aspects of the operation of any democratic society.

The danger does not come only from State bodies. The general use of recording devices opens up possibilities of private espionage by means which have nothing in common with the radiography techniques once used by jealous husbands, gossips, and reputation jinxers. Such interference can take place in the building in which the family lives. In some cases, one member of the family may be spying on another member of the same family (providing grounds for divorce, for instance).

In the commercial, technical and financial fields, competing companies can spy on each other, and not only on each other; private espionage can be used also within the company itself (secret recordings, for instance, of the conversations of the heads of departments made by the president or the managing director of the firm); in such cases, although there is no question of "private life", questions of private law do arise.

Businesses in the field of information can be tempted all the more easily by the technical possibilities of these clandestine recordings because they have long been accustomed to using all the conventional techniques.

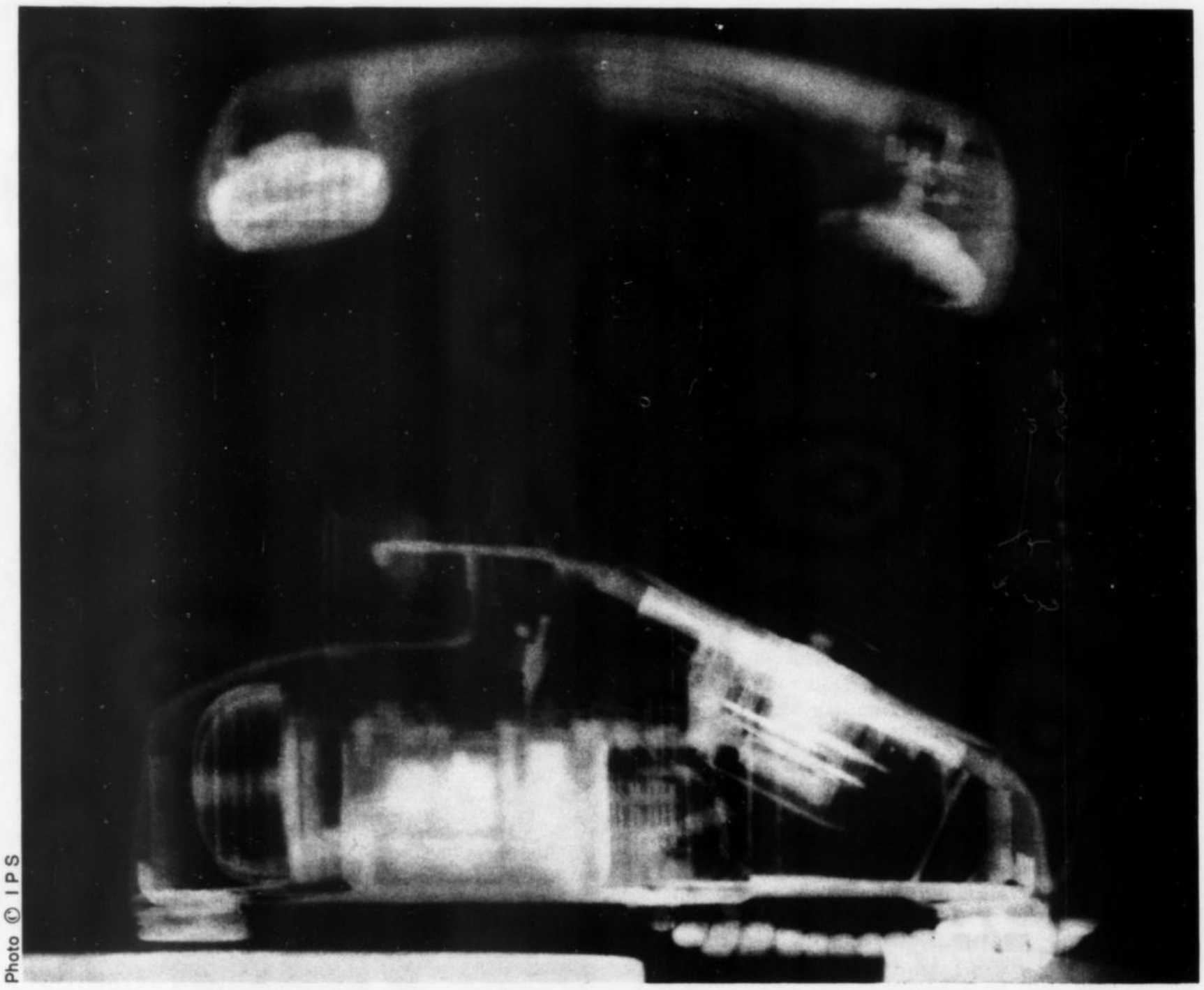

Photo © I P S

Closed-circuit television is being used, among many other purposes, to relay lectures to additional classrooms; to survey stores with high shoplifting records and to guard warehouses at night; or to help protect tenants in apartment house lobbies and elevators and riders on subways from assaults and robberies.

Some techniques have been found to be of great use in the field of medicine. Thus the principle of the "optical fibre", which makes it possible to transmit images along bent and curved paths, may be applied for use in surgery. The modern nursing technique of "intensive care" is dependent on electronic systems of remote surveillance and the recording of vital processes.

Closed-circuit television is also an important tool in certain radiological techniques and in the education of members of health teams. The observation of mentally disordered patients is facilitated by the use of polaroid glass windows in wards or recreation rooms. It has been stressed that when applied in the health and medical fields these techniques and devices have as their objective the good of the individual and that any invasion of his privacy is an incidental by-product.

It has also been pointed out that criminals have at their disposal the products of modern science and technology, including the moden media of rapid communication and transportation, which enable them to plan and carry out their schemes more swiftly, over larger areas and less conspicuously than previously; and that, correspondingly, the law-enforcement agencies also need to avail themselves of modern techniques to be able to fight crime. Surveillance devices are known to be used in the interests of national security.

Despite the harmless and beneficial uses which exist for modern methods of surveillance, such methods obviously can be used equally well in ways which threaten, or create problems for, the privacy of the individual Many of the new surveillance devices are relatively low in price, easy to obtain or to put together from components, simple to install or use, cheap to operate or hard to detect, or may combine various of these characteristics.

It appears that not only governments but also private individuals are availing themselves of the new surveillance technology to an increasing extent and in a variety of contexts.

In "The Problem of Privacy in the Year 2000" (*Daedalus, Journal of the American Academy of Arts and Sciences*, Summer 1967), Harry Kalven, Jr., points out in this connexion that :

"Soon intrusions will not be limited to government measures in aid of law enforcement or national security. The technology may become a commonplace in the hands of private parties —employers interested in the off-hours activities of employees, competitors interested in one another's integrity and trade secrets, estranged spouses interested in perfecting grounds for divorce, insurance companies interested in the subsequent health of personal injury claimants they have paid, and the idly curious who are just interested."

Examples exist of traditional situations in which traditional methods of supervision or surveillance by persons are even now being replaced at times by technical devices. Such methods include the surveillance by means of microphones or closed-circuit television of students and teachers in classrooms, and of employees in places of work, such as factories and stores.

The resulting transmissions may or may not be recorded on tape. They make it possible, depending on the technique chosen, to monitor and to record every gesture, facial expression or remark, every minor lapse or every confidential exchange of views between friends, however brief.

Concern has been expressed as to

CONTINUED PAGE 32

6. New techniques for probing the mind

LIE DETECTOR

"The name lie detector is popularly applied to a number of instruments, capable of measuring changes in bodily reactions : pulse rate, blood pressure, breathing and perspiration rate, reports a recent U.N. study on respect for privacy. "Bodily changes accompanying verbal replies are recorded in the same way as an electrocardiogram. While many devices require the person questioned to be connected by wires to the instrument, it is now possible to give a lie test without the person concerned being aware of it by seating him in a seemingly ordinary chair with built in sensors and recording apparatus. A new type of lie detector has been developed which is designed to detect psychological stress from measurements of a speaker's voice taken without the speaker being aware of it. Lie detector tests are used primarily in police investigations and by business firms as part of their personnel selection policy."

Photo shows an interrogation using a lie detector in a scene from a French film.

Photo Gaumont International, Paris

International standards for the right to privacy?

The United Nations report on Human Rights and Scientific and Technological Development lists a number of points for possible inclusion in international standards concerning respect for the right to privacy. We publish below some of the major proposals put forward.

● States shall adopt legislation, or bring up to date existing legislation, so as to provide protection for the privacy of the individual against invasions by modern technological devices.

● Penal Codes should designate as offences and provide for penalties of fine, imprisonment or both, for :
1. the clandestine monitoring or recording of conversations except, possibly, by participants to the conversations; and except by judicial or ministerial order, and in accordance with that order, in countries which permit monitoring or recording in criminal investigation or for reasons of national security;
2. the disclosure by any person of information so obtained;
3. the clandestine viewing, photographing, filming or televising of members of households and their guests in their dwellings, except by judicial or ministerial order, and in accordance with that order, in countries which permit such actions in criminal investigations or for reasons of national security;

● States which permit the utilization by their own agencies of modern recording and other techniques in the investigation of crimes or for reasons of national security shall

Drawing by Asdrubal Salsamendi - Unesco

RECENT decades have seen the invention or development of various techniques of eliciting information from individuals by psychological and physical means such as personality assessment techniques ("personality tests"), polygraphs ("lie detectors"), narco-analysis and certain bodily tests, the use of which may involve invasions of the privacy of the individual.

It should be kept in mind in this connexion that many of these techniques and devices have medical uses and when applied in the health and medical fields have as their exclusive objective the good of the person concerned, any invasion of his privacy being an incidental by-product.

The new techniques available range from those concerned with psychological reactions alone, through techniques taking into account the physical effects of a person's psychological reactions or the psychological effects of his physical reactions, to techniques measuring physical condition only.

One type of assessment is that employing psycho-physiological indices, such as cardiac (heartbeat) deceleration, pupil contraction, and electrical conductivity of the skin produced by sweating. These approaches are used to identify transitory states of the personality, such as guilt, anxiety, interest, stress and emotional ambivalence. The most important application of this type from a human rights standpoint is in the "lie detector" test.

The "lie detector" procedure consists in the person under examination being asked a series of questions by the polygraph operator. The bodily changes accompanying the verbal replies are registered by the instrument and translated by pens into patterns on graph paper, resembling those of an electrocardiogram. Certain variations in bodily reactions to different questions—some relevant and some irrelevant to the subject-matter under investigation—are interpreted, broadly speaking, as reflecting stress engendered by the need for telling an untruth.

An example of psycho-physiological personality assessment is a technique that purports to reveal "private attitudes about public things and persons". This approach examines changes in the contraction or dilation of the pupil of the eye when the person concerned is presented with pictures.

In one study, for instance, pictures of leading political figures were used. This study reports that one out of three of those professing preference for one of two major candidates in a political campaign actually preferred the other candidate, preference being indicated by pupil dilation for preferred candidates and pupil contraction for disapproved candidates. Work has been done on reactions to verbal materials as well.

This technique also has been used to indicate the advertizing effectiveness of pictorial material. Current technology usually employs cameras with the assessee's head held in a fixed position.

Personality assessment techniques are used in particular in connexion with psychological research, guidance, educational and vocational counselling, and personnel selection and administration.

When used for guidance purposes, they are intended to enable the individual concerned to gain insight into his own personality. In connexion with educational and career counselling, they are used with a view to facilitating the selection of the type of education or occupation which would enable the person in question to make the most of his aptitudes.

In personnel administration such assessment techniques are used with a view to facilitating the selection of the most qualified and suitable candidates for the posts in question, both for initial recruitment and subsequent promotion. It is considered, however, that the predictive value of such tests varies considerably, depending on their nature and on the specific use to which they are being put.

The original motivation in attempting to apply scientific methods to the various procedures mentioned above has been the search for objective criteria, untainted by personal prejudice or human error, be it in the choice of a career, the selection of a person for a given job or the search for an offender.

Irrespective of the question of moti-

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make provision to restrict the use of these techniques to cases of the most serious crimes or the most serious threats to national security. Prior authorization shall be given in each case by a judicial authority.

● States permitting the operations of private detectives shall license such detectives individually.

● States shall favour the estiblishment of journalists' codes of ethics including provisions concerning respect for the privacy of the individual.

● In addition to any possible criminal liability, civil liability should attach to either the use of an auditory or visual device in relation to a person, under circumstances which would entitle him to assume that he could not be seen or heard by unauthorized persons, or the unauthorized disclosure of information so gained.

● Civil remedies shall allow a person to apply for the cessation of acts thus violating his privacy and, where the act has been completed, to recover damages, including damages for non-pecuniary injury.

● Legislative or administrative steps shall be taken to control effectively the importation, manufacture, advertisement, sale, transfer and possession of devices suitable primarily for clandestine auditory or visual surveillance.

● Legal provision shall be made for the confiscation and destruction without compensation of recording and other devices utilized in an offence involving clandestine auditory or visual surveillance, whether or not the device was intended primarily for such use.

● States shall establish expert bodies to follow scentific and technological developments and to draw the attention of the legislature, the executive and the public to the effects of such developments upon the right to privacy and to possible safeguards required.

vation, however, methods of psychological and physical inquiry such as those mentioned above may easily interfere with the privacy of the individual concerned. The nature of the questions asked in psychological and psycho-physiological inquiries may be such as to constitute a direct and open interference, as may the bodily invasions involved in the purely physical tests.

Questions as to the subject's political and/or religious preferences, sex life and relationships within the family may be considered in this category, as may be the revelation of one's innermost thoughts in questioning under narco-analysis or the discovery through physical tests of filial relationships or alcoholic consumption. The recording of a person's unsuspecting, unconscious or involuntary reactions may amount to clandestine interference.

It has been maintained that no invasion of privacy takes place where the test is taken voluntarily. What is "voluntary" represents, however, a complex issue. For example, it depends entirely on the law of the particular state or locality whether a person involved in a police inquiry or in judicial proceedings, be it as a suspect or accused or as a witness, may decline a request that he submit to a "lie-detector" test or to narco-analysis and what, if any, conclusions may be drawn from his refusal.

Where taking a "personality" test or a "lie-detector" test is made a pre-condition for hiring, continued employment or promotion, or even where this is merely "recommended" as being "desirable", taking such a test may not be a genuinely voluntary act for a person seeking, or seeking to retain, employment; the more so as his refusal to take the test, if recorded, may harm his chances of obtaining employment elsewhere.

The absence of a meaningful form of voluntary consent poses a threat to privacy particularly in cases where the personality assessment deals with intimate features of one's personal, sexual, religious or political life.

QUITE apart from these issues, there remains the question of the scientific reliability or predictive value, in each particular case, of procedures such as those discussed above. A validity record of 80 per cent may be considered significant in a research project seeking to establish trends. The implied 20 per cent margin for error, on the other hand, may be significant where conclusions are to be drawn about an individual human being.

A further threat to the privacy of the individual may arise when information obtained with his consent on the understanding that it be treated as confidential is disclosed without consent, whether through computerization or otherwise.

A survey of the willingness of some 130 corporations to release employment test scores to other individuals in the firm (especially immediate work supervisors), to government agencies, and even to other firms indicated that 61 firms were willing to release this information to immediate supervisors while only 25 would release it to the employee himself. Sixteen of these firms would release this information to government agencies although the survey report does not say for what purpose.

The use of norms compiled in one country to interpret the meaning of an individual's personality test scores in another country may lead to misinterpretation. This is particularly likely when ready-made personality test interpretations are available through the mail. Claims have also been made that personality assessment procedures may discriminate against minority groups within a country.

THE question of psychological and physical invasions of privacy has been the subject of considerable study in recent years.

The problems discussed are ethical, technical and legal. Is it compatible with respect for human rights, more particularly respect for the privacy of the individual, to use methods such as those already discussed in order to extract information from a person without his consent or even his knowledge? Is it possible to increase the reliability of these methods of inquiry as well as adapt them so as to reduce to a minimum the invasion of privacy they entail? Can the law effectively regulate the use of these methods and provide remedies for persons whose rights have been violated?

As for "personality" tests and "lie detector" tests, much of the discussion revolves around the use of these methods in employment situations. Thus the Director-General of the International Labour Office, in his report entitled Technology for Freedom (Geneva, 1972) summarized the questions relating to personality tests as follows:

"No less serious for the future of personal freedom [than intrusion upon worker's privacy by surveillance devices] are some of the possible consequences of the erosion of privacy by the growing use of "personality tests" and "aptitude tests" which have developed from advances in psychology and psychiatry. Clearly, tests which make it possible to place a worker in a job corresponding to his qualifications and aptitudes, or which can help to determine more accurately a worker's suitability for transfer to another job or for promotion, are to be welcomed, since they can make for improved productivity and greater job satisfaction.

"To the extent that such tests can be shown to measure variables, such as manual and other skills, physical dexterity or ability to handle machinery, which predict the extent to which the worker will succeed in the job or training course for which he is applying, they can be most useful tools of personnel policy. Testing may indeed ensure greater equity in selection than the more widely used interview, but it presents two types of problems.

"There is evidence that testing may discriminate against culturally disadvantaged groups. Such discrimination may sometimes be intentional, though generally it is likely to be due to the simple fact that individuals who are culturally disadvantaged or belong to minority cultural groups are often handicapped when competing with others in certain types of tests. There is here a potential, if unintended, abuse of testing, which can be eliminated only if testing procedures are devised which can accommodate a diversity of cultural backgrounds.

"Secondly, tests and interview techniques which seek to penetrate personality and measure such imponderables as emotions, attitudes, mental equilibrium, adaptability, or capacity to withstand psychological stress may be designed to have the subject reveal his political views or his attitudes on intimate religious, political, sexual or family matters; a candidate, or even his family, may be subjected to gruelling interviews and other tests placing him under great mental stress and he may be under observation without even being aware of it.

"The conclusions derived from tests designed to penetrate an individual's subconscious and to make him reveal things about himself which bear no direct relation to his future employment may be of dubious validity, particularly if the tests are conducted and analysed by persons who are not highly qualified psychiatrists and psychologists. An individual's whole career may be compromised, and his morale unnecessarily shaken, by undependable or meaningless scores in such tests.

"The employer or person who decides not to employ the worker may come into possession of a mass of actual or inferred information of a highly personal nature about him which is not related to his work. Is not the whole question of the relationship to personal freedom of the encroachment of promotion and selection techniques upon privacy another issue of substantial importance for the discharge of our commitment to personal freedom?

"These issues have been made much more acute by current developments in information storage. Prejudicial information, whether unfair or misleading or not unfair but irrelevant or best forgotten, has become much more serious because less likely to be forgotten or overlooked." ■

HIDDEN INVADERS

"There are now in active use subliminal and brainwashing techniques by which the subconscious of the individual is invaded and his thoughts and personality are influenced without his consent. These instruments can be smuggled in past the customs of the senses. Some methods of which I am aware include ultra-sonic waves, inaudible to the conscious senses, just as the "silent" dog-whistle is inaudible to man. At sonic frequencies just beyond the threshold of normal hearing you can get through a silent message without anybody being aware of it. The same thing is happening in our presentation of films and television. The subliminal film is a very dangerous instrument and has been authoritatively banned in most countries. But control is only possible at the point of preparation since the whole essence of the subliminal is that it is not detectable at the receiving end and therefore we have to have strict scrutiny of what is happening."

LORD RITCHIE-CALDER

U.K. Delegate to the
Unesco General Conference
in 1968

Photo © O.M.E.C.C., New York

The frightening power to control people's behaviour through manipulation of their subconscious minds, hinted at by George Orwell in "1984" and Aldous Huxley in "Brave New World", may be nearer than we think. Experiments are being made to sway our emotions by the technique of subliminal perception—by the use of stimuli that are perceived below the threshold of consciousness. In films, images can be flashed on the screen for just a fraction of a second. They are not registered by the viewer's conscious mind, but register on his nervous system. If repeated often enough they invade his mind without his being aware of what is happening. In these three frames from the film "My World Dies Screaming", a skull and the word "blood" are incorporated as subliminal projections.

"Waiting in Quintuplicate" (Attente Quintuplée) is the title of this work by a Greek artist, Yannis Gaïtis, presented at the Young Sculptors Exhibition held at Unesco in July 1972.

THE BRAVE WORLD OF DATA SURVEILLANCE

In September 1970, the International Commission of Jurists in Geneva undertook on behalf of Unesco a comparative study of the laws relating to the legal protection of the right to privacy. This Unesco inquiry was carried out in 10 countries and its results were published in N° 3, 1972, of Unesco's quarterly magazine "International Social Science Journal" (*). Below we reproduce a passage on "Data Surveillance" and "Legal Safeguards" from that issue.

IT is likely that within the next twenty years most of the recorded information in the world will be on computers and more than half the telephone calls will be communications to and from and between computers.

As a method of storing information and making it available, computers are not only cheaper and more efficient than conventional methods such as books or files. They operate on an entirely different dimension and make possible the collection, collation and distribution of information on a scale hitherto unthinkable.

The machines on which all this data is recorded need not themselves be large. For instance, with a certain type of computer based on the laser system, it would be possible to have the equivalent of twenty pages of information about every man, woman and child in the world on ten tapes, each 1,500 metres long and 2½ centimetres wide. A match-box can contain computer-recorded information which, in print, could scarcely be contained in a cathedral.

The benefits to mankind which can flow from the use of computers are immense. It is plain that not only will their use continue to grow, but computers will so dominate the scene in a few years time that nearly all information will be collected in the form required for its storage in computers.

There are a number of ways in which computers can pose threats to the privacy of the individual, but the central one is the fact that they will make it possible for a person having access to the coded data on computers to bring together all the recorded information, often of a private and personal nature, about a particular person in a way that would never have been practical before.

People have become accustomed to making a lot of information about themselves available for particular purposes. Each item of information does not in itself reveal very much and persons are willing to disclose it, confident that those to whom it is given will use it only for the purpose for which it is intended.

If one thinks about the matter one may also conclude that it would not be practical for anyone to bring together the different items of information in such a way as would enable a picture, however distorted, to be constructed of one's private life and activities. All that is now changed by the computer.

Examples of the kind of personal information given to public authorities include records of births, marriages and deaths, medical records, records of education, military service, passport applications, employment records, social-security records, declarations for tax returns, applications for licences of many kinds, motor-vehicle registrations, post-office savings-bank accounts and telephone accounts.

These records are usually based on information voluntarily given by the individual concerned or his relatives. In addition, there may be confidential records compiled by police or intelligence authorities.

A second category of records are those compiled for commercial purposes and include bank accounts, demands for credit facilities, credit-card accounts, travel records including ticket purchases and hotel bookings, and hotel registrations.

Equally, records can be and are kept by private firms of information about

*** "International Social Science Journal", Unesco, Place de Fontenoy, 75007 Paris. Price: single issue $2, 60p, 8F; yearly subscription $7, £2.10, 28F. Obtainable from Unesco national distributers (see page 35.)**

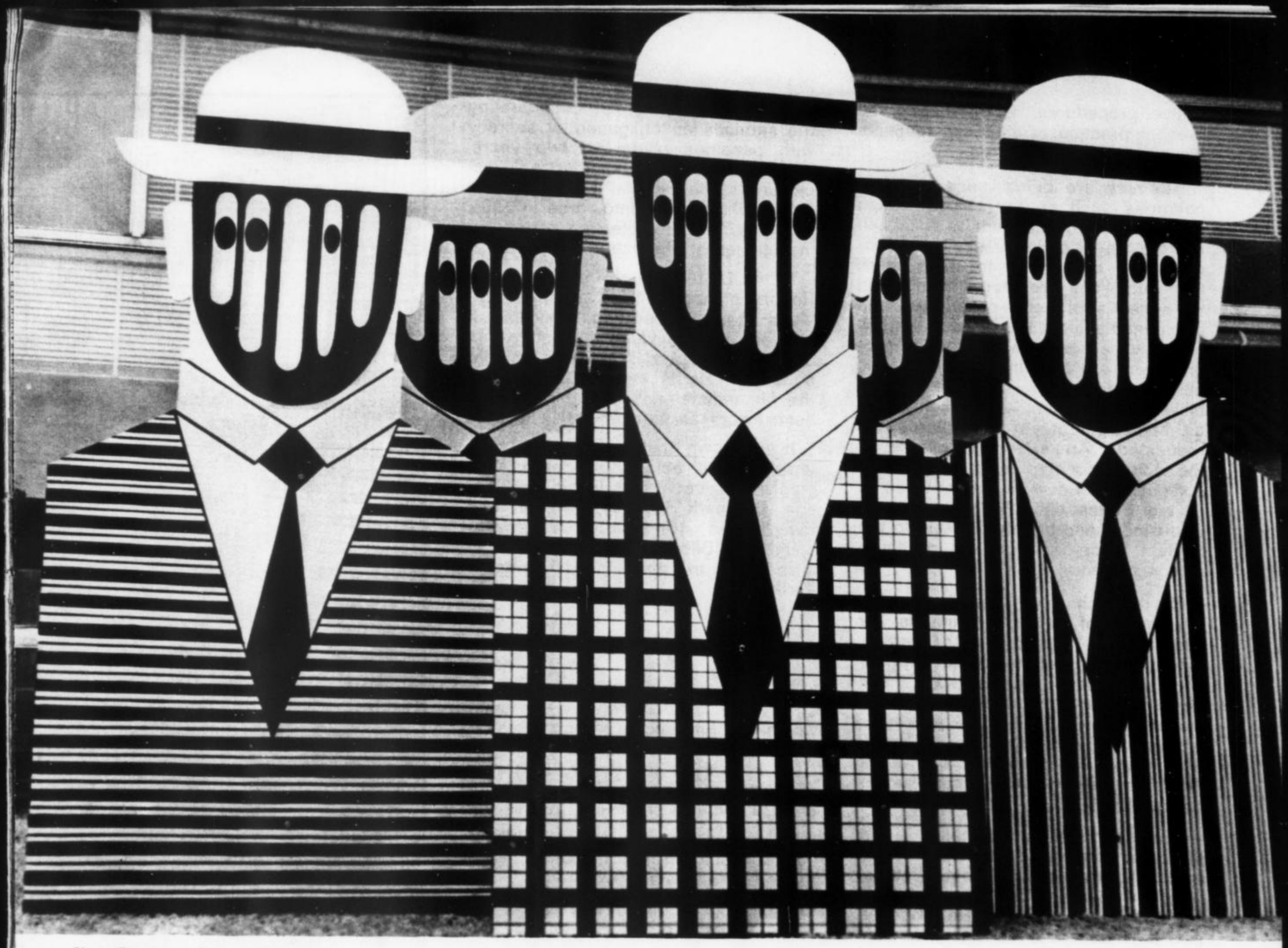

Photo Dominique Roger - Unesco

people's supposed credit-worthiness, without their knowledge, and supplied commercially to inquirers. In the United States a number of firms have computerized records of the financial position of more than 100 million people.

Many such records can be used by anyone with access to the computer for purposes quite different to those for which they were compiled, and above all for purposes of surveillance. One of the main problems of surveillance is to find the person who is to be kept under observation. Use of a credit card will reveal in a matter of seconds where the holder is at the moment that he presents it. Again, if hotel and boarding-house registrations are filed on computers, the same result can be achieved.

From records such as these an "inverted file" can be compiled in a few minutes of all the recorded information about the places to which a person has travelled over a period of time, where he stayed and with whom, what purchases he made at what places and so forth.

The computer has the ability to reorganize a large *quantity* of information (each element of which is separately harmless) into a new *quality* of information which may reveal more than a person wishes to be known.

Furthermore, this connexion which may be established between different items of information concerning a given individual, may be used as the basis for passing judgement on him, a secret judgement from which there can be no appeal and which, because it is based on a computer, is thought to be objective and infallible. But in fact the information used may be inexact, or out of date or of no real significance, with the result that the final conclusion amounts to a "scientific sophism".

Some writers consider that there is a danger of serious interference with the personal development of the individual resulting from the way in which he is "presented" by the computer; in the last resort he may be driven to the point where he modifies his real personality to suit that presentation, behaving not in fact as he wishes but as he feels he is expected to behave "objectively" and "scientifically".

There is a further danger that the individual will become too conscious of his past rather than of his future. Such domination of the private life of the individual by technology could lead to a veritable pollution of the human personality.

These anxieties have been well summarized by Prof. Arthur Miller of the U.S.A.: "The computer with its insatiable appetite for information, its image of infallibility, its inability to forget anything that has been put into it, may become the heart of a surveillance system that will turn our society into a transparent world in which our home, our finances, our associations, our mental and physical condition are laid bare to the most casual observer."

Other dangers to privacy from computer data banks are that there may be errors either in the information fed into the computer or in the reorganization or "evaluation" of the information, or simply errors due to mechanical or electrical faults. Errors once recorded tend to remain, for the simple reason that it is cheaper and easier to retain records in data banks than to eliminate them. Another feature of computers is that it is very simple to erase an entry and substitute another, and unlike alterations in a conventional file, these alterations cannot be detected.

In principle there are a number of ways, other than by legal sanctions, in which the individual can be protected and these risks reduced. These lie in establishing good professional standards, building in technical safeguards and adopting secure adminis-

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trative procedures. Unfortunately the present practice in all these respects leaves much to be desired.

Attempts are being made in some countries such as the United States and the United Kingdom to establish a professional code for computer programmers but these are little more than guidelines and programming is in no sense a properly constituted and disciplined profession. This is serious not only because the information programmers are handling is confidential, but because they do not have the stability of employment which might serve as some guarantee that secrecy is respected. An extreme example of the lack of concern for privacy in the computer world was seen when a United States data system went out of business and offered for sale to the highest bidder its dossiers on three million citizens.

On the technological level there are a number of possible methods for checking the "integrity" of the system, for controlling access to the information (as by passwords or "keys") and for controlling the processing of information. Many of these are expensive to introduce, requiring elaborate "hardware" and "software" and are unlikely to be adopted except under compulsion.

One specialist has compiled a list of administrative safeguards which could be introduced as a set of model rules for operating computers containing personal information. He proposes that an independent advisory council should have to be satisfied of the need for the data and of the effectiveness of the security measures before authorization would be given to hold personal data in computers.

He also proposes coded identifications rather than names and addresses and that personal files should be erased at regular intervals of not more than ten years. As far as is known, there is no administrative code of this kind in force in any of the countries covered by the study carried out for Unesco in 1970-71 by the International Commission of Jurists, or indeed elsewhere.

Some of the dangers to individual privacy from the operation of data banks fall within the ambit of existing laws, but very little legislation specifically related to computers has yet been passed in the ten countries dealt with in Unesco's study.

Many countries have legislation which make it an offence for public servants to disclose without authority confidential information acquired in the course of their official duties. In the United Kingdom, for example, there are provisions of this kind in the Official Secrets Act 1911 and in the Taxes Management Act, 1970.

The recent legislation establishing national data-processing services in the United Kingdom imposes upon the officials of the Post Office operating the services an obligation of secrecy with penalties of up to two years' imprisonment for unauthorized disclosure. The Federal German Penal Code, which came into force in 1969, provides for the protection of privacy in automated information systems.

In the United States the Fair Credit Reporting Act 1971 covers the activities of credit reporting agencies. It entitles an individual against whom an adverse report is made to be told about it. He is entitled to examine the file maintained about him and to have errors corrected.

It is known that the possibility of legislation is being considered in a number of countries, including Canada, Denmark, Norway, Sweden and the United Kingdom. A private member's Bill on the subject was introduced in the United Kingdom Parliament.

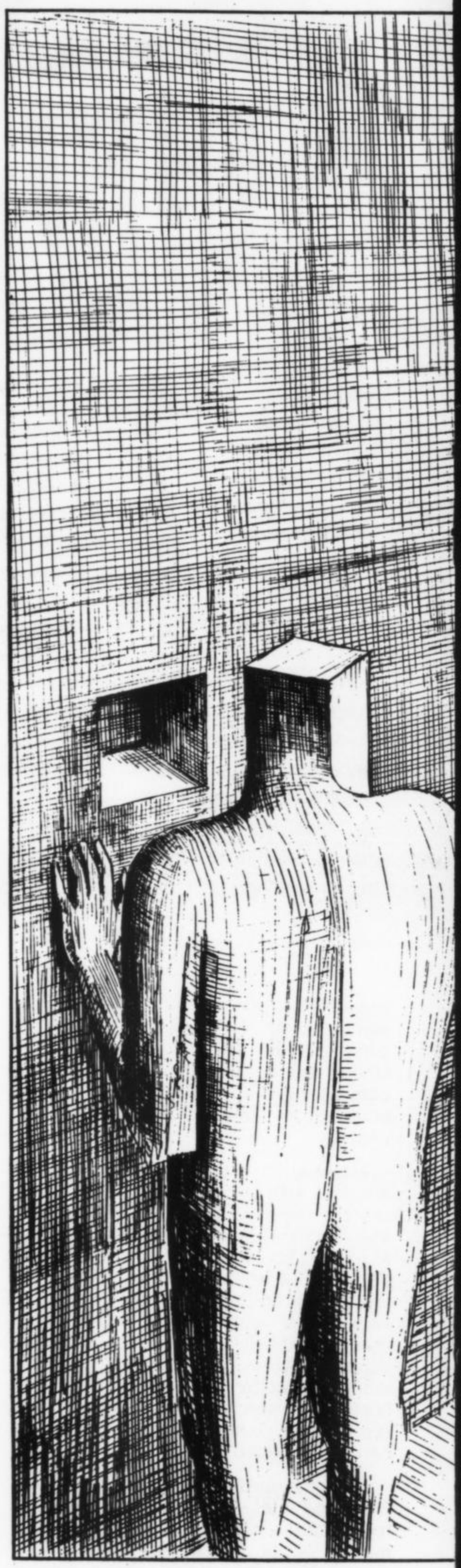
THE only country, however, which has introduced any comprehensive legislation on this subject is the *Land* Hessen of the Federal Republic of Germany. The *Land* Hessen's Act of 1970 contains provisions for:

- Imposing the duty of protection of confidentiality in the method of operation of all data banks;
- Imposing a duty of secrecy on the operators, with penal sanctions;
- Establishing an effective enforcement and complaints procedure through the Data Protection Commissioner;
- Giving the individual the right to have errors corrected. It may be commented that there appears to be no right for the individual to know what has been recorded about him. The "right to verify" may prove ineffective without a correlative "right to know".

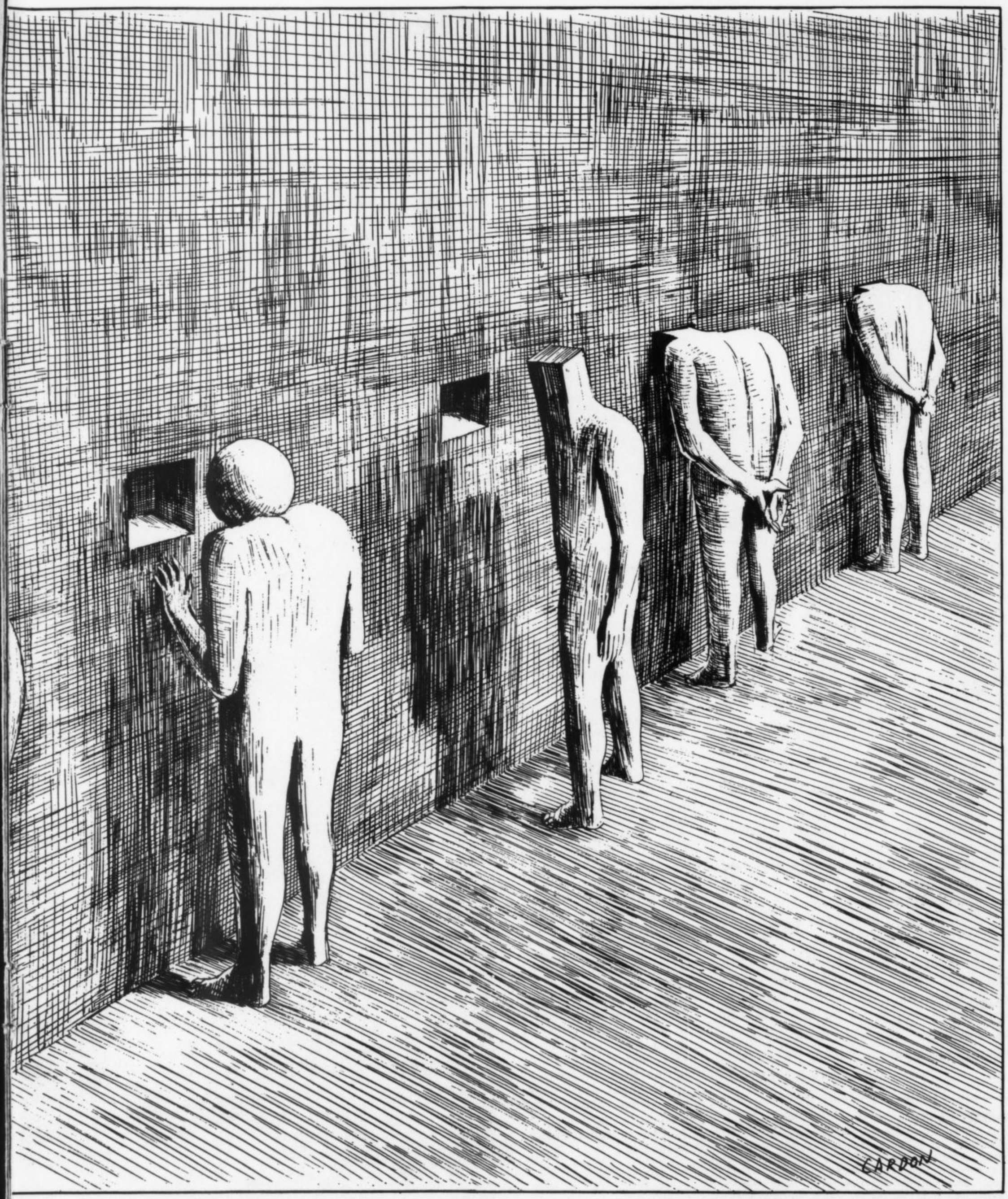
Finally it should be mentioned that the Union Internationale des Avocats has prepared for the Council of Europe a draft convention and model law on the right to privacy which deals with the question of data privacy, including the storage of data, the theft or misuse of data and the publication of data.

It is to be hoped that the reports prepared on the intergovernmental level as a result of the 1968 resolution of the U.N. General Assembly and the answers submitted by governments may serve as the basis for the preparation of an international convention for the protection of human rights against the dangers arising from scientific and technological developments.

It is only through an international convention that sufficient legal protection is likely to be provided to ensure that technological devices do not operate to the detriment of legitimate human rights. ■



CONFORM
OR ELSE...



Drawing © Cardon, from "Satirix", No 13, 1972, Paris

"Wholesale invasions of privacy," says the United Nations, "inhibit individual liberty... The community becomes fear-ridden, and no one can be trusted... This destruction of trust is one of the major dangers to a free society... The detailed questionnaire for employment, housing or insurance, the hidden but suspected camera, psychological tests, the lie detector—all these devices for ferreting out intimate details of our lives produce a pervasive insecurity which suppresses individuality, discourages responsibility and encourages frightened conformity..."

THE RUINS OF PARADISE

Unearthed from Syrian sands 40 years ago, the ancient city of Mari may now be doomed

by André Parrot

IN the summer of 1933, on a hillock known as Tell Hariri near Abu Kemal, in Syrian territory, some Arab peasants who were looking for stones to cover a grave came upon a battered, headless statue distinctively "Sumerian" in character. A few months later, a French archaeological expedition was sent from Paris to explore Tell Hariri.

After a month of digging, we had the good fortune to unearth a shrine packed with votive statuettes of male and female worshippers.

Three of the statuettes bore inscriptions in cuneiform script. Each inscription consisted of only four columns of characters, but from them we learned a great deal.

We discovered that the temple was dedicated to Ishtar, goddess of war and fertility. The votive offerings had been dedicated by Ebih-il, a steward, a "miller" named Idi-narum and, above all, by a certain Lamgi-Mari who styled himself king of Mari.

This was all we needed to identify the site. Hariri, which was the name of an Arab poet, could obviously not have been the name of the town in in antiquity. But the name Mari is mentioned several times in ancient

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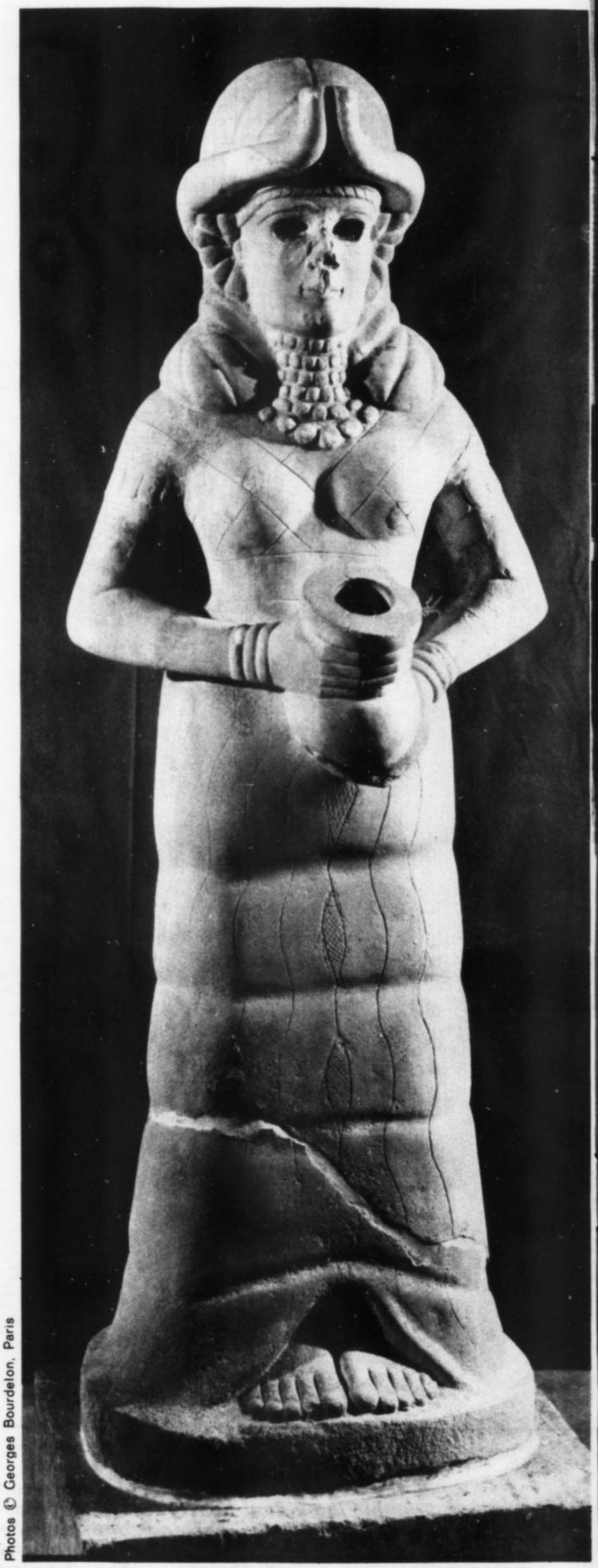
ANDRE PARROT, *honorary director of the Louvre and curator-in-chief of the National Museums of France, is one of the world's great authorities on the ancient Near East. His excavations at Baalbek in the Lebanon, Larsa and Lagash in Irak, and most significantly at Mari in Syria, have added enormously to our knowledge of the history of ancient Mesopotamia. He has written over thirty books on Oriental and biblical archaeology including two celebrated works translated into several languages: "Sumer" and "Assur", published by Editions Gallimard in their series "The Arts of Mankind", of which he is co-editor with André Malraux. (English editions published by Thames and Hudson, London, and Golden Press, New York).*



When unearthed from the sands of the Syrian desert in 1936, this "goddess with the flowing vase" was decapitated and in fragments. Deity of one of the most ancient civilizations that flourished on the banks of the Euphrates, the human-sized statue was buried for almost 4,000 years before its discovery on the site of Mari, capital of a great city-state with a history dating back to between 3000 and 1800 B.C. With both hands the goddess tilts the *aryballos* or vase, so arranged that on certain occasions the "life-giving waters of fertility" flowed from a hidden tank and issued through the vase. Far right, head of the goddess from which the eyes inlaid with lapis-lazuli have been gouged. The plaited hair, falling to the shoulders like a collar, still bears traces of ochre colouring. One of the most precious of all Mesopotamian sculptures, the reconstructed statue is now in the Aleppo museum (Syrian Arab Rep.).

Photos © Georges Bourdelon, Paris

texts, in particular as having been the capital of a dynasty (the 10th after the Flood) and at one point the great rival of Hammurabi, King of Babylon.

It was recorded by the scribes that in the thirty-fifth year of Hammurabi's forty-three year reign, an important military operation was carried out (it was the custom, at that time to distinguish years by the major event occurring during the twelve-month period) and that "on the orders of Anu and Enlil (two of the major Mesopotamian gods, of the sky and the earth respectively) Hammurabi destroyed the walls of Mari".

It would seem that Mari was a formidable as well as a feared city, for two years previously Hammurabi had already congratulated himself on his "victory" over Mari and Malgia.

Once the identification of Hariri with Mari had been established, it could be expected that the results of systematic exploration would be most impressive, and so they were, even as described here in bare outline.

Fifteen temples dedicated to the different gods of this polytheist civilization were found, with all their votive sculptures, and although most of these were broken, it was possible to piece many of them together again.

As well as the temples, a gigantic palace was brought to light, covering more than eight and a half acres, containing 300 rooms and courtyards, and dating back to the nineteenth and eighteenth centuries B.C., the royal residence of a dynasty whose last representative was Zimri-Lim—the very king who fought Hammurabi.

The palace contained several extraordinary features: the throne room, the area where the functionaries had their offices, private apartments, bathrooms still with their terracotta bathtubs, chapels; nearly life-size statues, including that of the governor Ishtup-ilum, lying on the floor of the throne room where it had fallen from a dais, and the "trick" statue of the "goddess with a flowing vase" from which, by a system of connecting vessels, the water of fertility could be made to gush on certain days; mural paintings—religious scenes (sacrifices, investitures) and geometric patterns—older than those of Crete; and a royal library containing the diplomatic and economic archives of the kingdom, 25,000 tablets in cuneiform script which are now being deciphered by a Franco-Belgian team under Professor Dossin.

This is only the merest outline, but there was more to come. Beneath the second millennium palace, two more palaces unexpectedly emerged,

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Photo © Aviation Française du Levant

These photos sum up the problems of safeguarding the extraordinary ruins of Mari, capital city of a Mesopotamian kingdom, discovered some forty years ago. Above, aerial view of the huge site today. At top left is the temple of Ishtar, goddess of fertility (3rd millenium B.C.), excavated during the 1930s. At centre foreground is the palace of Zimri-Lim (2nd millenium B.C.), a vast construction covering over eight acres. In 1936 the palace walls, still perfectly preserved, stood five metres high. Today, the same walls (below) are eroded and in ruins after exposure to the elements.

This 15 cm. high statuette of a grand-priestess (left) was discovered in the temple of Ishtar at Mari. The eyes are formed of shells incrusted with lapis-lazuli and the remaining traces of the arms indicate that the hands were folded in an attitude of prayer. Below, a worshipper, eyes similarly fashioned from shells and lapis-lazuli, was found at another temple at Mari. The carefully curled beard does not hide the suggestion of a smile, echoed on many 3rd millenium B.C. statuettes unearthed at Mari.

Photos © André Parrot, Mari Archaeological Mission, Paris

obviously older than the first and undoubtedly belonging to the "tenth dynasty after the Flood" mentioned by scribes. Here again we found fantastic architecture, more rooms, courtyards, shrines.

But an even more astounding discovery awaited us. Whereas the walls of the earliest known third millennium Mesopotamian palaces, at Kish and Eridu, were still standing only to a height of one or two feet, the palace walls which we uncovered, being superimposed, rose to a height of 20 feet. Being protected by the walls of the second millennium palace of Zimri-Lim, destroyed by Hammurabi about 1770 B.C., they were in a perfect state of preservation.

Although the palaces at present being excavated are indeed, for buildings of their age, of an extraordinary height and in a remarkable state of preservation, the shadow of disaster hangs over them. The palace of Zimri-Lim was also magnificently intact in 1939, yet in the twelve years when it was left unattended (from 1939 until work was resumed in 1951) it was seriously damaged by erosion. The reason is quite simple: it was built of unbaked bricks, i.e. sun-dried clay, and as Hammurabi's soldiers had destroyed the roofs, everything was now exposed to the open air and doomed to decay.

Exactly the same fate—total destruction—awaits the third millennium palaces excavated between 1964 and 1972 unless something is done.

In its day, Mari, in the Middle Euphrates region, was one of the most brilliant centres of Mesopotamian civilization, the civilization which grew up in the biblical "Garden of Eden", a land watered by a river which "when it left the garden branched into four streams" (Genesis 2: 10), including the Euphrates and the Tigris.

It is a civilization whose extraordinary achievements have been revealed by over a century of archaeological research. Museums in the East and the West alike are full of objects which offer for our admiration not only accomplished works of art but the evidence of human activity in all its forms.

These objects were the work of artists and craftsmen whose names —since writing was not discovered

Above, badly mutilated statue of a worshipper, discovered at Mari in 1952. It dates from the first half of the 3rd millenium B.C. and introduces a style of sculpture completely new at the time. Left, archaeologists unearth the statue of Ishtup-ilum, governor of Mari, dating from the 2nd millenium B.C. It was found in the throne room of the palace of Zimri-Lim at the foot of a staircase where it had fallen during the destruction of Mari by the Babylonian king Hammurabi (18th century B.C.).

Photos © André Parrot, Mari Archaeological Mission, Paris

Photos © André Parrot, Mari Archaeological Mission, Paris

Right, mask of a young man discovered at Mari in a 3rd milienium B.C. shrine. The body of the statue has not been found. The mask measures 3.5 cm and is carved in white stone. The eyebrows as well as the eyes are formed of lapis-lazuli, a bright blue mineral widely used as an embellishment in Mesopotamian sculpture. Sculpture as well as wall paintings in the many monuments found at Mari show that the city was for long a great centre of the arts.

until 3000 B.C.,—must forever be unknown. Different systems of writing were evolved in different countries, hieroglyphics in Egypt, cuneiform script in Mesopotamia.

Beginning as pictograms, writing became syllabic and finally, about 1300 B.C., on the eastern Mediterranean coast, alphabetic. The stage was now set for great achievements. The technical developments were rapid. This is not a subjective view: Mari was to be a convincing demonstration and a perfect illustration of it.

The palaces of Mari are not only monuments of Syria's past but also part of the common heritage of mankind. One of the aims of Unesco's programme is to restore and protect monuments, works of art and natural sites of universal value threatened with "deterioration and destruction" —two words which sum up exactly the dangers which threaten the palaces of the pre-Sargonid (third millennium) period at Mari.

Something has to be done, and done quickly; time is not on our side. In this respect nature is a ruthless, destructive enemy and vigorous efforts must be made to protect the palaces from its ravages. ■

Photo V. Yegorov © APN, Moscow

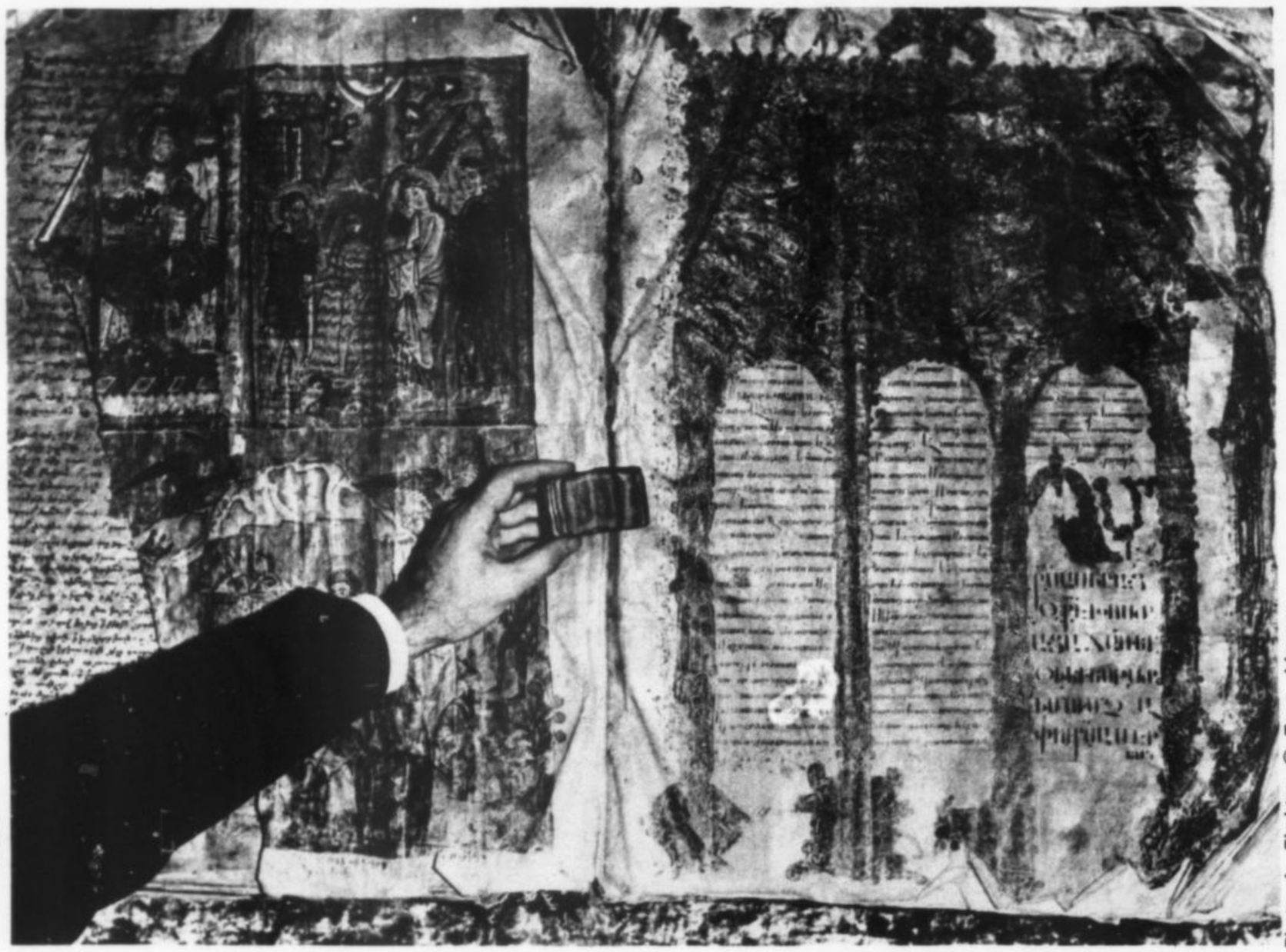

Photo A. Ekekian © Tass, Moscow

The Bible recounts how, after the Flood, Noah's ark came to rest on Mount Ararat, in present-day Turkey. The inhabitants of Yerevan, capital of the Armenian Soviet Socialist Republic, enjoy a breathtaking view of the mountain which looks down majestically over the city. Yerevan is the home of the Matenadaran, the world-famous collection of priceless, ancient Armenian manuscripts. Above left, an expert examines the largest of these manuscripts, completed in 1204. It weighs over 32 kilograms, measures 70 cm. × 51 cm., and 600 calf hides were used to make the parchment for it. Left, the same tome shown in comparison with the smallest manuscript which weighs only 18 grammes, including the binding. It was produced in 1434 at Kaffa (now Feodosia), in the Crimea, from tiny parchment sheets measuring 3 cm. × 4 cm.

Photo © APN, Moscow

THE SAGA OF ARMENIA'S LOST MANUSCRIPTS

How they came to rest in the Matenadaran at the foot of Mount Ararat

by David Fiks

DAVID FIKS, *Soviet journalist and educator, is a member of the editorial staff of the Russian language edition of the "Unesco Courier" in Moscow. For several years he has been literary editor of the Russian edition.*

ACCORDING to an old saying, books have their special destiny, just as men do. And this is clear to anyone who examines the ancient manuscripts in the Matenadaran archives at Yerevan, capital of the Armenian Soviet Socialist Republic.

Not only are the documents cracked, bloodstained and damaged by fire and weapons, but in many places great holes gape like open wounds where there were once delicate illuminated miniatures of outstanding beauty.

The Matenadaran, today an institute for the study of ancient manuscripts, was originally a library founded in the 5th century by the Patriarch of Echmiadzin, near Yerevan.

Its rich collection of manuscripts symbolizes the tragic past of the Armenian people; the two histories are in fact identical. And it is not by chance that when old Armenian documents speak of these books they use terms

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Photo © P. Papikian, Moscow

MASTER AND PUPIL. Statue of Mesrop Mashtotz, inventor of the Armenian alphabet in 405 A.D. The statue, showing the famous monk teaching a pupil how to read, stands at the entrance to the Matenadaran which is dedicated to him.

SACRED MINIATURES. The miniature was a major form of pictorial art in medieval Armenia. On the following pages we present just a few of the thousands of miniatures in the Matenadaran collection. The names of the artists are generally unknown although a few have come down to us, such as Toros Roslin whose "Annunciation" (right) adorns a page of a 13th century gospel. Below, a page from another gospel, known as "The Gospel of the Seven Painters", shows the casting out of devils and healing the Centurion's servant. In 1967 the Matenadaran Institute published a beautifully illustrated volume entitled "Armenian Miniatures", by L.A. Dournovo and R.G. Drampian, with texts and captions in Armenian, Russian and French.

ARMENIA'S MANUSCRIPTS *(Continued)*

normally applied to human beings, telling how the works were "taken prisoner" or "ransomed".

The adventures of many of these manuscripts could indeed provide themes for novels or short stories. To save them from foreign vandalism they were often buried, hidden in forests or taken off into the mountains.

In 1204, after three years of ceaseless work, Vardan Kafaetsi of Mush (in western Armenia) finished copying a set of sermons. Six hundred calfskins had been used to make the parchment, and the completed manuscript weighed 32 kilos (over 70 pounds). The owner valued it more than anything else he possessed. But he perished when the town was invaded by the Seljuks who carried off the manuscript.

Hundreds of men and women helped pay the ransom of 4,000 drachmas (1 drachma was worth 4.65 grammes of silver), and their names were inscribed in the book. For nearly seven hundred years it was kept in the library of the Holy Apostles Monastery in Mush—then came the tragic events of 1915...

Escaping from a massacre, two Armenian women spent the night in the ruined monastery. In the morning they discovered the enormous volume abandoned in the church. They divided it into two parts, to reduce the weight, and having wrapped one part in a piece of clothing, they left it beside the road, thinking some honest folk would find it and would do what they could to save the book.

The manuscript was lost several times, but after long wanderings the first part was brought to the Matenadaran archives. Nobody knew what had become of the rest. But a few

Photos Ayastan Publishers, Yerevan, Armenia

years ago, the Matenadaran purchased a very old manuscript, and it turned out to be the missing half.

The two parts are now reunited under the same binding. But a certain number of illuminations have gone for ever. Many pages are missing too, though 17 of them turned up and are now at the Church of the Mekhitharists on the Island of San Lazzaro in Venice. In fact nearly 4,000 Armenian manuscripts are in the keeping of the Venetian Mekhitharists, and 1,200 are with the same congregation in Vienna.

Some 5,000 others are in Jerusalem and nearly 1,000 at Isfahan. There are also a number of Armenian manuscripts in the British Museum, the Bibliothèque Nationale in Paris, the Saltykov-Shchedrin Public Library in Leningrad, the Institute of Oriental Studies in Moscow, the Historical Museum in Tbilisi, etc.

At a rough estimate, about 24,000 Armenian manuscripts have survived to the present day. But a great many have unfortunately been lost.

The Matenadaran collection is not only the world's largest, with over 11,000 texts, but also the most valuable. It contains the oldest manuscripts and therefore those of the greatest historical interest. Many of them came not only from Armenia but also from India, Egypt, the Philippines, Cyprus and the Crimea, and from cities such as Lvov, Alexandria, Constantinople, Aleppo and Leghorn.

This is not surprising, since by the 11th century the Armenian diaspora had already begun, as the inhabitants sought refuge from invasions and conquests. They founded colonies all over the world, and it was in these places that the manuscripts were made; for this was the only way the Armenians could prevent their national culture from degenerating or dying out. Against the power of arms they opposed the power of the word, and the word prevailed.

Thanks to the copyists, the Armenian chronicles were written down and the great heritage was preserved. The copyists devoted their whole lives to this noble task. They were often poor and even destitute, living in primitive lodgings and suffering from cold or heat, but they worked on their manuscripts from early morning until late at night with extraordinary fervour and they asked very little in return for their labours. All they wanted was "to be remembered". And they were extremely meticulous.

"I know it only too well," records one, "there are countless imperfections in this manuscript, but I have done what I could. My hand was trembling and I could scarcely see—my first finger was paralyzed and I had to use the middle one. What a calamity. I have been working for 42 years now, and nothing like this has ever happened before. I am ashamed. Please forgive me . . ."

Often, a work was begun by one copyist, continued by a second, and completed by a third. At the end of the manuscript, the copyist generally left what are called "commemorative inscriptions". These are a precious source of information about the political, social and economic situation at the time. They teach us a great deal about the copyist himself, too.

The copies were sometimes commissioned by individuals, but generally by monasteries, whose libraries had been the main centres of written culture since a poor unknown monk, Mesrop Mashtotz, invented the Armenian alphabet in the 5th century.

In the 15th century, all the monastic manuscripts were moved to Echmiadzin, near Yerevan, where the seat of the Supreme Catholicos, the head of the Armenian Church, was transferred. This collection forms the nucleus of the present Matenadaran archives.

Until then, the manuscripts had been kept in jumbled piles in cellars; and the bad conditions had caused their progressive deterioration. But in the second half of the 18th century they were finally given proper attention.

In the first half of the 19th century, they were finally sorted, classified, and arranged in specially designed cupboards in two well-lit rooms near the Catholicos' apartments. The first list of these manuscripts was published in 1837, Russian and French versions of it being issued by Academician M. Brosset in Saint Petersburg in 1840. It only gave details of 312 manuscripts,

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but it marked the beginning of their proper study.

On December 17, 1920, the government of the Armenian Soviet Republic recognized the Matenadaran as a publicly owned State institution. In 1939, the Matenadaran was transferred to Yerevan, where it became the State archive of ancient manuscripts, records and documents, to which was later attached a scientific research institute entrusted with the collection, preservation and study of the manuscripts.

Today, the Matenadaran houses 10,572 intact manuscripts in Old Armenian and 1,889 fragments, as well as 1,365 texts in Arabic, Persian, Greek, Latin, Ancient Hebrew, Russian, Slavonic, Syrian, Ethiopian, Georgian, Azerbaijanian and a number of other languages, covering nearly 2,000 years of the history of mankind, from the 4th to the 18th centuries.

It also contains more than 100,000 public records and a valuable collection of ancient Armenian printed works, including the first book printed in Armenian: "Parzatumar" (a calendar of church feasts published in Venice in 1512 by the first Armenian printer, Akop Megapart), as well as the first Armenian journal "Azdarar" (the Messenger), published in Madras in 1794-6.

The oldest Armenian treasures in the Matenadaran are fragments of written texts from the 5th and 6th centuries and illuminations from the 6th and 7th centuries. The very first manuscript which has come down to us in its entirety is a New Testament inscribed on parchment in 887 A.D. A secular work dating from 971 A.D. is the oldest manuscript written on paper existing in the U.S.S.R.

Among the unique specimens in the Matenadaran, there is a history of the Afghans, the ancestors of the present-day Azerbaijanians, written by Movses Kagankatvatsi in the 10th century, and also very ancient written copies of works from various countries whose original texts are lost.

These works now exist only in their Armenian translation. They include "On Nature", by Zeno of Citium (4th-3rd century B.C. Greek philosopher); "The Chronicle", by Eusebius of Caesarea (3rd-4th century A.D. bishop and ecclesiastical historian); the seven philosophical treatises of Philo Judaeus (the great Hellenistic-Jewish philosopher who wrote during the first 40-50 years A.D.); "The Definitions" of Hermes Trismegistos (the Greek name given to Toth, the Egyptian god of wisdom, as the reputed author or source of the "Hermetic" works of revelation); the last four chapters of "The Preliminaries", by Theon of Alexandria (4th century A.D. Greek astronomer and mathematician).

The list of rare works in the Matenadaran is of course much longer, but it is more important to stress that there is not a single field of human knowledge that has not found an echo in these manuscripts.

Research workers find these documents an inexhaustible source of information on ancient times and the Middle Ages, as well as on philosophy, theology, and law, on cosmography, astronomy and geography, on pedagogy, mathematics, chemistry and alchemy, and on poetry, prose, music, and art.

It is this that makes them so important for the science and history of mankind. As the Chilean poet and Nobel Prizewinner, Pablo Neruda has noted: "The old sacred books of wisdom and poetry continue to live here like dried roses, still full of invisible seeds..."

Many of the manuscripts have already been published, mostly in Armenian, but translations into foreign languages have also appeared. This has been made possible by detailed study of the manuscripts following a large-scale inventory. Each index card lists the number of the manuscript, the number of pages, the format, the material (parchment, paper), the state of preservation, the date and place of production, the number of scribes, the name of the person commissioning the work and those of the restorers, as well as details of the text itself.

A thematic catalogue has also been made, classified according to branch of knowledge.

Special methods have been worked out for the preservation of the manuscripts, based on the most recent scientific and technological innovations and the rooms are kept at a constant temperature. Before being placed in the archives, a "new" manuscript is disinfected and cleaned, sheet by sheet; and the Matenadaran Chemical and Microbiological Laboratory is studying new and better ways of disinfecting, restoring, preserving and "treating" the manuscripts (the

most damaged sheets are consolidated with a gelatine solution).

In the restoration laboratory, new ways of counteracting harmful agents attacking the manuscripts are being worked out. The binding services restore the flexibility of the dried skins of the old covers and make new ones. Microfilms and photographs are made of unique copies.

All this enormous and difficult work carried out in the Matenadaran is State-supported. In 1959, a special building was constructed to house the Matenadaran manuscripts. This is not only a depot, where the survival of the precious words of human wisdom and knowledge is assured, but also a magnificent memorial to the thousands of Armenian sages, translators and copyists who created and preserved a vast cultural heritage which now has its place among the treasures of world culture. ■

MASTERPIECES OF ILLUMINATION

The paintings and illuminations that embellish most of the Armenian manuscripts preserved at the Matenadaran are masterpieces of the art of illustration. They usually depict biblical scenes: above, Jonah emerging from the whale's belly, painted by Toros Roslin; below the Nativity and the Adoration of the Magi; left, a portrait of the apostle St. John.

Photos © Ayastan Publishers, Yerevan, Armenia

Lawless frontiers *(Continued from page 11)*

the use, for purposes other than accident or incident investigation, of flight data recorders, and particularly of cockpit voice recorders, which cover all of a pilot's conversations during a given flight. The International Labour Organization has drawn attention to certain aspects of this problem as it affects freedom of association, more particularly trade union rights, and the personal freedom of the individual.

In addition to the substitution of modern techniques such as wire-taps, secret microphones, transmitters and cameras for more traditional methods of supervision and surveillance, the new technology makes possible entirely new approaches to surveillance.

It has been suggested, for instance, that small sensing devices which may monitor the location of and such other facts about the wearer as his pulse rate and the sounds in his immediate surroundings, be worn by or implanted on prisoners released on parole. This would have the advantage not only of disclosing immediately any violation of some conditions of parole but also, presumably, of inhibiting such violations, thus making possible a more widespread use of release on parole.

On the other hand, any utilization of such devices for parole purposes is being objected to on the grounds that it would involve a total and degrading deprivation of privacy, beyond even conditions existing in the average prison, which would make it impossible for the parolee to establish normal relations of love, friendship and trust required for successful social reintegration and would. moreover, destroy the element of trust implicit in the very concept of parole.

THE rapidly developing products of a new technology are to some extent being utilized in a legal vacuum, since legal safeguards which evolved at a time when such devices did not exist may not cover them or may be insufficient or inapplicable.

Thus, for example, telecommunications legislation adopted in the 1930s may be drafted in such a way as to punish technical wire-taps but not extend to the monitoring of telephone conversations by other methods, such as induction coils or miniature microphones.

Modern devices have also created a new situation as regards the remedies available to the person whose privacy has been arbitrarily invaded. Thus legal provisions relating to trepass or unauthorized entry of premises may be couched in such language as to be inapplicable in situations where the surveillance device, though monitoring what is happening inside the premises, is installed on the outside.

In other cases the provisions, theoretically applicable, may be so difficult to enforce as to provide little or no protection, as, for instance, where hard-to-detect surveillance devices are placed on the premises by persons obtaining legal entry on false pretences (for example, by a person pretending to be a repairman or an employee of a gas company).

The linking of computers to modern surveillance devices is considered by some as presenting "perhaps the most significant threat to personal freedom". An example given by one expert, relating to telephonic communications, describes such a combination as follows:

"One of the simplest contemporary snooping devices is the pen register, which, when attached to a telephone line, records a series of dashes representing the number dialed from a particular telephone. This snooping capability could be magnified if the information drawn in by the pen register were automatically fed into a central computer for analysis. Widespread use of this technique would quickly reveal patterns of acquaintances and dealings among a substantial group of people."

The expert points out, however, that such monitoring will soon be possible without a pen register: "When telephone communications are completely converted to digital transmission, it will be easy to prepare a ready-made machine-readable record of calls made from other telephones to establish an individual's or a group's associations."

Conflicts arise between the right to privacy and the freedom to "seek, receive and impart information and ideas through any media and regardless of frontiers" (Article 19 of the Universal Declaration of Human Rights).

This problem is not new and, in fact, intrusions by the press have previously given rise to many court rulings concerning privacy. It has been made more acute, however, by the utilization on the part of the press of new devices that facilitate clandestine photography and the secret recording of conversations.

Discussions of conflicts between individual privacy and the freedom of the press often revolve about the question of what situations are to be considered private or public, and of whether legal remedies should be available only where the material thus published is defamatory or also where, though not defamatory, it constitutes an unwarranted intrusion upon a person's privacy.

Many studies concerning improved protection of privacy stress that one important factor is popular awareness of the need to protect privacy, of the means used to invade it and of measures required to protect it.

Emphasis is also placed on the existence of countermeasures to detect or counteract the presence of surveillance devices. These include, among others, searches of premises for hidden devices; metal-locating instruments; radio frequency probes; the use of "scrambling" devices to prevent eavesdropping on or tapping of telephone or radio messages; and lowering window shades to prevent infra-red photography from outside.

ONE expert suggests that the easiest way of locating a transmitter microphone:

"is to have a radio receiver loudspeaker—often a cheap FM transistor radio receiver will do—and tune this receiver through its full range, making sure that there is enough noise, perhaps by whistling, to activate the hidden microphone. The gain on the transistor receiver should be set at full volume. When the receiver is tuned to the frequency of the microphone radio transmitter any noise in the room is likely to be picked up by the microphone and transmitted to the receiver which radiates it again from its loudspeaker, and this feeds sound energy back to the microphone.

"The result of this interaction is usually a loud whistle or scream from the transistor set, and by turning the gain down until the scream stops and then moving the transistor set until it starts again, one can finally track down the site of the microphone... The system has the objection that the generation of the squeal is a sure indication to the eavesdropper that his victim has awakened to the threat."

Television surveillance using an infra-red sensitive eye for obtaining pictures in an apparently dark room could, it has been explained, be detected by an infra-red photocell, rather like those carried by military vehicles and personnel to warn them when they are coming under infra-red surveillance. But with the longer-wave infra-red devices, which work by the heat radiated by bodies themselves, and which are therefore "passive" such a method of warning does not work.

While technical inventiveness can make it possible to take countermeasures, it can equally provide new techniques to overcome countermeasures, and so on *ad infinitum*. ■

Letters to the Editor

SCIENCE AND MYTH

Sir,

When I read Pierre Auger's article "Science and Myth" (February 1973) I was reminded of the words of Ortega y Gasset (in *History as a System*, 1941):

"Scientific truth is exact, but it is incomplete and penultimate and of necessity embedded in another ultimate, though inexact truth which I see no objection to calling a myth. *Scientific truth floats in a medium of mythology;* but science taken as a whole, is it not a myth, the admirable myth of modern Europe?"

Now, I've been brought up on myths. Indeed, the whole culture of India is mythological. It is the language of the seers, sages and saints of India, as valid today as ever.

Myths are about the Being—needs of all humans, and in this capacity for universal application they become the generalisations which apply to the subjective side of reality. Their greatness lies in their fullness, their richness, their resonances with the many overtones and undertones of the psychic and moral life.

Ortega also reminded us that where science stops, man does not stop. The problem is, as we might see it, this: that science cannot enter the lives of men except in the form of myth, for myth deals with fundamental questions. The attempt to demythologise religion or "philosophy" is to make it increasingly unacceptable. Happily, many distinguished scientists such as Edsin Schrodouger and E. Bohm are aware of this and are, therefore, somewhat like Simone Weil, wanting to return to the roots. Myth is the source of things.

Baldoon Dhingra
Paris, France

NUCLEAR POLLUTION

Sir,

Your issue on pollution (January 1973) with its excellent articles and illustrations was of particular interest.

But I am surprised that so little space was devoted to the crucial problem of radioactive pollution. By this I mean not only the fall-out from atomic explosions, but also the contamination caused by nuclear power stations. Scientists throughout the world (physicists, biologists, biochemists, among other) have expressed their anxiety about this question, and the Club of Rome, which is mentioned in your January issue, is also concerned about the problem.

Nuclear power stations are today a danger to human, animal and plant life. Reactors in normal use constantly emit radioactive waste in the form of liquids and gases—wastes that no one knows how to store and which remain radioactive for anything from a few years to several centuries. And there are also considerable potential risks due to earthquakes, accidents, sabotage, etc.

This problem deserves to be dealt with in greater depth, especially as it is now a general policy of industrially developed countries to build more and more nuclear power stations regardless of the risk of causing cancers, leucaemia and other malformations among the world population at large.

Catherine Lieber
Cachan, France

The "Unesco Courier" spoke out on the dangers of nuclear pollution nearly 15 years ago. In "Is the Ocean in Danger?" (August-September 1969) and in "Atoms Overboard" (August-September 1960) it described the risk of radioactive contamination by wastes from nuclear power stations. Other articles (in the August-September 1967 and November 1970 issues, for instance) have reiterated such warnings.—Editor.

YOUTH BULLETIN ON THE ENVIRONMENT

Sir,

I congratulate you on the quality of the January 1973 issue devoted to environmental conservation. I feel sure that the "Unesco Courier" will have increased public awareness of the threats to the environment in all those countries where it is read.

Your contributors presented the facts in a logical fashion and demonstrated that the ecological crisis has its roots in man's exploitation not only of natural resources but also of his fellow man. Materialism is supported by an economic system which deprives developing nations of their share of the world's resources, while the citizens of developed countries are increasingly exhorted to consume more than they actually need. Until we achieve an equal distribution of wealth and a stable economy, we shall not be able to enjoy our life in harmony with nature.

May I draw your readers' attention to a unique new periodical, supported by Unesco—*Taraxacum*, the *International Youth Bulletin on the Environment*—which is intended as a contact point for young ecologists and youth organizations throughout the world. It is available (in English, French or Spanish language versions), from: Th. Vethaak, Populierenlaan 193, Amstelveen 1134, The Netherlands. It is hoped that the Bulletin will serve to stimulate young people in their struggle to create a better world for tomorrow.

David Withrington
International Youth Federation for Environmental Studies and Conservation (IYF)
London, U.K

VIOLENCE VIA TV

Sir,

I read with interest the article "TV the new tom-tom... but what is the message?" (February 1971) and also "International Problems of Television via Satellite" (February 1973).

One would also like to know how television is being used in different countries as an educational medium. For example, a report appeared in our local press on January 2, 1971, that 25,000 Britons will begin university courses on television aimed at bachelor of arts degrees. Also interesting would be a survey of the findings throughout the world of studies that have been made and reports issued on the social repercussions of TV and movie viewing. An important contemporary question is: How effective can education for world peace be when violence is so often presented as entertainment in movies and TV?

Another interesting topic would be cigarette smoking and lung cancer around the world. In North America the incidence of lung cancer continues to soar. Advertizing of cigarettes in publications continues, despite growing pressure that advertizing of products detrimental to human health and welfare be banned.

Lillian Money
Victoria, B.C., Canada

A photo report on the Open University in Britain, referred to above, appeared in our special issue on the report of Unesco's International Commission for the Development of Education (November 1972). As regards the relationship between cigarette smoking and cancer, see our special May 1970 issue—Editor.

CUB REPORTERS' VISIT

Sir,

Our class recently visited a special exhibition on Auroville held at Unesco (see "Unesco Courier", October 1972). At that time we were able to visit the editorial offices of the "Unesco Courier". Thank you for the warm welcome you and your editorial staff gave us. We have produced an album of photographs of our visit as well as a special issue of our class magazine on Auroville and Unesco which we are proud to send you.

The pupils of class 7b Mixed Primary School and their teacher, J. Cruat, Rue François-Coppée, Paris.

Photo Dominique Roger - Unesco

The large editorial room of the "Unesco Courier" in Paris—the Editor-in-Chief, Sandy Koffler, being interviewed by cub reporters and distributing copies of the magazine. In background the Assistant Editor-in-Chief, René Caloz, and other members of the staff.

UNESCO NEWSROOM

BOOKSHELF

RECENT UNESCO BOOKS

■ **Cultural Policy in Poland**

By Stanislaw Balicki, Jerzy Kossak and Miroslaw Zulawski (Studies and Documents on Cultural Policies) 1973, 67 pp. ($2, 60p, 8 F).

■ **Practical Guide to Functional Literacy**

A method of training for development. 1973, 170 pp. ($2,50, 75p, 10 F).

■ **New Trends in Integrated Science Teaching, Vol. 2**

Edited by P.E. Richmond. 1973, 239 pp., illustrations, tables, diagrams ($7.65, £2.20, 24 F).

■ **World Problems in the Classroom**

A teacher's guide to some United Nations tasks. By Herbert J. Abraham. 1973, 223 pp., illustrated ($4, £1.20, 16 F) (see also inside back cover).

■ **Cinematographic Institutions**

A report prepared by the International Film and Television Council. (Reports and Papers on Mass Communication No. 68) 1973, 98 pp. ($2, 65p, 8 F).

OTHER BOOKS

■ **China: A Resource and Curriculum Guide.**

Edited by Arlene Posner and Arne J. de Keijzer with introduction by Edwin O. Reischauer. The University of Chicago Press, Chicago and London, 1973 (cloth $6.50, paperback $2.95).

■ **Art and Literature in China**

By R.J. Saywell. Ginn and Company Ltd., London, 1973 (£2.70).

■ **Popular Beliefs and Folklore Tradition in Siberia**

Edited by V. Dioszegi. Indiana University, Bloomington, Mouton, The Hague-Paris, 1968 (76 Dutch Guilders). (See item this page.)

Italy to spend $510 million to safeguard Venice

Italy is to spend 300 billion lire ($510 million) on priority preservation work in Venice. A recent Italian law authorizes an international loan for this sum to be spent over the next five years on urgent works to protect the lagoon against the sea, combat and reduce pollution, instal new water supply and drainage systems, modernize dwellings and restore monuments and works of art. Following this decision, Unesco has opened an office in Venice to co-ordinate international action with the efforts of the national authorities. Since Unesco's international appeal for Venice in 1966, several countries and some 30 private organizations have made contributions totalling 1,500 million lire. Unesco has also helped to preserve monuments in Venice and has aided scientific research on the city's special problems.

International Fair Play Awards

American tennis player Stan Smith and Spanish basketball star Emiliano Rodriguez were recently presented with the 1972 Pierre de Coubertin Fair Play Trophies at Unesco's Paris headquarters. Captain of the United States Davis Cup team, Smith showed exemplary sportsmanship under difficult circumstances during the 1972 Davis Cup final. Rodriguez was honoured for sporting qualities displayed throughout a long career. Certificates of honourable mention were awarded to Dieter Speer, German Democratic Republic skier, to French skier Pascale Trémoulet and to the Burma football team at the last Olympic tournament.

New Unesco radio magazine

A new 15 minute, monthly radio programme, "The Unesco Radio Review", dealing with major issues in education, science, culture and communication, has been launched by Unesco's Radio and Visual Information Division. Subjects covered so far include the study and prevention of natural disasters, prevention of drug abuse, cultural development, and Man and the Biosphere.

Preserving Africa's cultural heritage

A centre has been set up at Jos (Nigeria) to train specialists in modern museum methods of preservation and restoration, documentation and cataloguing of historic and natural sites, and other techniques for preserving Africa's cultural and natural heritage. Established by agreement between Nigeria, Unesco and the U.N. Development Fund, the centre is equipped with classrooms, laboratories, a museum and a zoo. The University of Ibadan is to set up a chair of museography at Jos and Unesco will award 12 to 14 study fellowships annually to African students.

Shamanism in Siberia

The origins and development of shamanism in Siberia is the absorbing subject of a collection of some 30 studies published under the title "Popular Beliefs and Folklore Traditions in Siberia" by Mouton and Co., The Hague. Originally published in Hungarian, the work was edited by V. Dioszegi, a young Hungarian anthropologist who has made a specialty of Siberian, Finnish, Hungarian and Turkish shamanism and is the author of a popular book "Tracing Shamans in Siberia", published in 1968 by Anthropological Publications, Oosterhout, Netherlands.

Nomads of Asia and Europe

Unesco and the Mongolian Academy of Sciences were joint sponsors of a recent conference on the role of nomadic peoples in Central Asian civilization. Held in Ulan Bator, capital of the Mongolian People's Republic, the conference examined the present situation and cultural trends among nomadic peoples. Unesco has also recently assisted in the publication of a historical study of the art and mythology of the nomads of the period of the great migrations. "L'Art des Nomades : des Scythes aux Hongrois", by professor Gyula László, published by Corvina Press, Budapest (1972), demonstrates the deep underlying links that unite the peoples of Europe and Asia.

NEW TURKISH EDITION

'Unesco Courier' now in 15 languages

We are happy to announce the launching of a new edition of the "Unesco Courier" in Turkish, starting with the May 1973 number.

The Turkish edition is the result of an initiative taken by Arkin Kitabevi, Ankara Cad 60, Istanbul (Turkey). Madame Mefra Telci is the editor of the new edition.

Annual subscription in Turkey: 75 Liras. Single copy: 750 Kurus.

The "Unesco Courier" now appears monthly in 15 languages: Arabic, English, Dutch, French, German, Hebrew, Hindi, Italian, Japanese, Persian, Portuguese, Russian, Spanish, Tamil and Turkish.

Flashes...

■ *Shanghai, China (10,820,000 inhabitants) is now the world's most populous city, followed by Tokyo (8,841,000) and New York (7,895,000) according to the latest U.N. Demographic Yearbook.*

■ *The 1,070 metre main span of the world's fourth largest suspension bridge, linking Anatolia with Europe across the Bosphorous, was recently welded into position. The bridge will open for traffic later this year.*

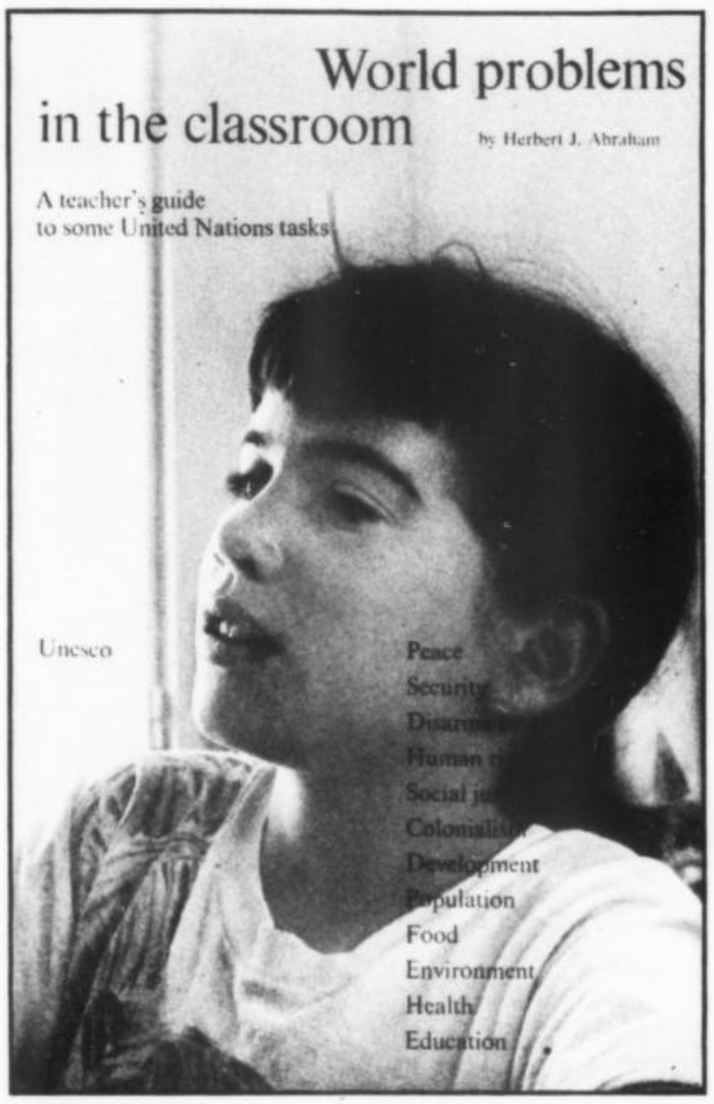
■ *The 1972 Unesco Architecture Prize has been awarded to Vladimir Kirpitchev, a student at the Moscow Institute of Architecture, for his project for a small-town recreation centre.*

■ *World energy consumption rose 63 per cent between 1961 and 1970, at an annual rate of 5.6 per cent, mostly through the use of petroleum and natural gas, reports the U.N. Statistical Yearbook.*

■ *Unesco has received £600,000 ($1.5 million)—proceeds from the British Museum exhibition of treasures from Tutankhamun's tomb—for the campaign to save the temples of Philae on the Nile.*

■ *The International Agency for Research on Cancer in Lyons (France) is to devote an extra $319.000 to research this year. Its research budget for 1974 has been raised to nearly $3 million.*

Imp. GEORGES LANG, PARIS. — Dépôt légal C 1 — Juin 1973 — IMPRIMÉ EN FRANCE (Printed in France)



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PEARLY-EYED GODDESS

Unearthed in Syria in 1964 by an archaeological expedition working at the famed site of Mari, lost city of ancient Mesopotamia, this bronze statuette dates back to the 3rd millenium B.C. Her hair worked in silver and her eyes fashioned from mother-of-pearl inset with pupils of lapis-lazuli, this dainty goddess wears a diadem of gold and stands only 11 cm. high. The palace at Mari where she was discovered is one of the oldest in the world. Urgent action is needed to prevent the palace walls, eroded by the elements, from collapsing (see article page 20).

Photo © Mari Archaeological Expedition